DEVELOPMENTAL DESCRIPTION OF FIRST GRADERS WITHIN LEVELS OF TEACHER, PEER, AND SELF PERCEPTION RATINGS

By

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A central purpose of this study was to compare developmental relationships and differences between high adjusted and low adjusted children. It is based on the increasing body of longitudinal evidence which suggests that peer-judged social competence is a powerful predictor of adult outcome and that early identification of children with interpersonal adjustment difficulties is essential to preventive intervention.

The sample consisted of 54 first grade subjects screened from 408 children on the basis of teacher, peer, and self perception ratings. Randomly selected individuals with two or more negative scores on the perception ratings were assigned to the low adjusted group. Those children with two or more positive scores were assigned to the high adjusted group. The middle group was randomly selected from those students scoring within the middle range of the ratings. The age range of the sample was six years and two months to

seven years and eight months. There were 28 girls and 26 boys screened into the three groups.

Each subject was given the Friendship Interview by the author to assess the developmental level of interpersonal understanding. These interviews were rated by mental health professionals. Developmental pattern of action stage was assessed from story narratives elicited during the interview. The Bender Gestalt Test for Young Children was used to assess the level of perceptual-motor functioning and scores from the Comprehensive Test of Basic Skills were obtained as an indication of skills prerequisite to studying and learning in school.

The data collected support the hypothesis that there is a relationship between level of adjustment as rated by teacher and peer perception regarding developmental pattern of action stage. High adjusted children have advanced stage scores when compared to middle and low adjusted children. Peer perception and its relationship to level of adjustment best predict interpersonal understanding. All adjustment groups can be discriminated on this variable and indicate that as the move is made from high to low peer status, level of interpersonal understanding decreases. Level of adjustment as it relates to teacher perception is the best predictor of outcome on perceptual-motor functioning. The low adjusted group was shown to be functioning at a lower

developmental age than high or middle adjusted groups. Also low adjusted children were shown to possess the skills prerequisite to studying and learning in school to a lesser degree than higher adjusted children when they entered first grade. When all the dependent variables were considered together, interpersonal understanding and action pattern behavior were the best predictors of level of adjustment as represented by teacher and peer perceptions.

CHAPTER I
INTRODUCTION

Most individuals live their lives within the primary social systems of our society. In early life, these consist of home and school. With maturity, work and political agencies come more strongly into the picture. Under common physical and social conditions, most people learn to function adaptively within these institutions. For some, other agencies or services of a secondary nature are required: e.g., if ill, a hospital; if delinquent, a special school; if disturbed, a child guidance clinic. Chances are that a stay in these secondary agencies is only temporary and that one will soon return to home or school; however, should troubles increase, some find themselves living in social systems characterized by a singular lack of freedom or privacy, such as mental hospitals or prisons.

To meet all of these needs, society must devise primary social systems with sufficient flexibility and effectiveness to provide individuals with educational and therapeutic programs maximizing their development. We must recognize that it is imperative that a basic means to these ends includes the opportunity and challenge to helping children more adequately organize their interpersonal lives. Thus, the

social world of the child becomes a crucial area for consideration. Human beings are dependent on one another and social interaction is based on the child's increasing ability to understand and relate to other's points of view. The study of the child's social world in the primary systems, home and/or school, is one way of viewing developing patterns of social interaction and interpersonal conceptions. Early identification of children who may run the risk of poor adult adjustments may serve as a preventive measure leading to effective interventions.

Peer relationships such as those formed in school are fundamental to the experience of discovering for oneself more mature forms of social interaction. Piaget (1973) claims that they are the prime impetus for physical and social development.

> It becomes evident that neither the teacher's authority nor the best lessons he can give . . . suffices to engender living, dynamic relationships, comprised of both independence and reciprocity. Only a social life among students themselves--that is, self-government taken as far as possible will lead to this double development of personalities, masters of themselves and based on mutual respect. . . . The methods founded on the spontaneous social organization of children among themselves is precisely to permit them to work out a discipline where the necessity is discovered by the action itself, instead of being received ready-made, before being able to be understood. (pp. 109-121)

Observations of the most well-adjusted children reveal that peer groups fulfill this need for support, feedback and cooperation (Jaquette, Parkhurst, Selman, 1977). But what of children at special schools or children who are in some other way isolated from peers? Too often the answer lies in an example related by a teacher who spotted one of his students in the park one Sunday. Not fifty yards away was a group of the boy's neighbors engaged in a game they all seemed to be enjoying. But Jon did not "feel like" joining in, or simply could not figure out how. It is conceivable that intervention at this childhood stage could prevent future maladjustment.

Rationale for the Study

Generally, solutions to problems of individuals are not sought until the emergence of a definable dysfunction. This study is an effort to create the development of a platform or position from which a framework for primary prevention can be organized. Stated in Bower's terms (1969):

> Primary prevention of living and emotional disorders is any specific biological, social, or psychological intervention that promotes or enhances the functional and emotional robustness or reduces the incidence and prevalence of functional or emotional illnesses in the population at large. In this framework, primary preventive programs are aimed at persons not yet separated from the general population and hopefully at interventions specific enough to be operationally defined and measured. (p. 11)

The developmental systems to be assessed in this study will provide operational criteria from which to describe maturational readiness for developmental approaches to counseling intervention and prevention (Dinkmeyer and Caldwell, 1970). The emphasis is on seeing the individual in process. The rationale for surveying these developmental processes is to define more clearly what the interaction is between the physiological and psychological domains. Sociometric status rating will accentuate possible differences in development that may be pertinent to adult outcome.

For the purpose of this investigation, the following definitions will apply:

Action Pattern Behavior: Action patterns refer to characteristic ways of behaving. They include disjointedness of actions, inability to switch actions appropriately during an ongoing behavior or activity, and the ability to reprogram actions according to new situations and demands.

Critical Period: The critical period for a given psychological development commences when that part of the Central Nervous System involved has reached a minimum state of maturation and begins to become functional. Before this time, the critical event is ineffectual because the nervous system is not ready to "receive" it (Nash, 1970, p. 130).

Developmental Variables: Action pattern behavior, interpersonal understanding (awareness), and

perceptual-motor functioning are developmental variables which are hierarchical and sequential; these variables are represented by distinctive qualitative differences in modes of thinking or solving the same problem at different ages.

Descriptive Variables: The descriptive variables to be investigated in the current study are action pattern behavior, interpersonal understanding (awareness), perceptual-motor functioning and skills prerequisite to studying and learning in school. Action pattern behavior and interpersonal understanding are alternately referred to as interpersonal variables; perceptual-motor functioning and skills prerequisite to studying and learning in school are alternately referred to as impersonal variables.

Emotionally Handicapped Child (EHC): According to Bower (1960, 1969, 1974), emotionally handicapped children can be perceived as those who demonstrate one or more of the following characteristics to a marked extent and over a period of time: 1) inability to learn, 2) unsatisfactory interpersonal relationships, 3) inappropriate behavior, 4) unhappiness, 5) repetitive illness.

Not Emotionally Handicapped Child (NEHC): This refers to children who experience and demonstrate the normal problems of everyday living, growing, exploration, and reality testing (Bower, 1974, p. 27).

Form Analysis: A brief clinical test of action patterns as expressed in narratives which gives an indication of functional maturational readiness of the Frontal Lobe System (Pontius and Ruttinger, 1976).

Frontal Lobe System (FLS): The frontal lobe system specifically mediates the form of action patterns that are essential for mature interaction with others. Full developmental maturity of the prefrontal cortex (FLS) does not take place until the late twenties (Luria, 1973).

Frontal Lobe System Immaturity: Defined operationally, Frontal Lobe System immaturity pertains to immature forms of action patterns and will be referred to as a neuro-developmental lag in maturation of expected functions.

Level of Adjustment: This refers to the selection and placement of children into high, middle or low adjusted groups on the basis of teacher, peer, and self perception ratings.

Peer-Ranked Social Adjustment: Gronlund (1959, p. 166) operationally defines social adjustment as the extent to which individuals are accepted by their peers. Thus, for the purposes of this study, an individual who is rated high on a sociometric test is considered to be well accepted by his peers and therefore to have good social adjustment. In

contrast, an individual who receives few or no choices on a sociometric test is considered to have low acceptance among his peers and therefore to have poor social adjustment.

Perceptual-Motor Functioning: This descriptive variable refers to a measure of intersensory integration of the perception of patterns, spatial relationships, and organization of configurations. A certain degree of intersensory integration is necessary before a child can learn reading and mathematics (Koppitz, 1975).

Process Variables: This term pertains to the descriptive operational criteria used to define progressive developmental stages or levels. For example, developmental level-1 of action pattern behavior is characterized by disjointedness of activities and a lack of planning. The descriptive criteria are processes (of doing or being) rather than static entities.

Social Perspective Taking: Social perspective taking is an analytical term which is used to identify developmental sequential aspects of interpersonal understanding or awareness. It represents the accumulation of information about what others think, feel, or intend, and additionally, the qualitative development of a child's awareness of basic social relations. Selman and Jaquette (1977a, p. 4) define perspective taking to be "the developing conception of the

structure of the relation between self and other(s)." A global interpersonal understanding score will represent an average of responses to standard questions designed to assess developmental sequential aspects of interpersonal understanding.

Purpose of the Study

An increasing body of evidence suggests that children's peer-rated social adjustment is an effective predictor of eventual need for the services of secondary social agencies. Another effective predictor is the directionality (i.e., excessive approach or excessive avoidance behavior) of a child's behavior problems. Support for these predictors of adult outcome arises from empirical studies of children's behavior disorders and from follow-up studies of the adult adjustment of children treated for their deviant behaviors in clinics (Gottman, Gonso, and Rasmussen, 1975; Rolf, 1976).

The basic purpose of this study focuses on the premise that early identification of children with interpersonal adjustment difficulties is essential to preventive intervention. A study which could assess first graders nominated by peers to have high, low and middle status in group would provide a framework for evaluation of developmental level of social perspective taking (interpersonal understanding) and a neurodevelopmental test of action pattern behavior. Such

a study would provide opportunity to observe developmental trends that appear to be characteristic of high and low functioning children. It would also provide guidance in efforts to construct counseling interventions for normal children and children with special educational and emotional needs which may be the result of emotional and/or functional maturational lag.

This fundamental descriptive research will provide an opportunity to investigate the following research questions:

1. What relationship does level of adjustment have to the neurodevelopmental system mediating mature interactions with others?
2. What relationship does level of adjustment have to interpersonal understanding development?
3. Are there patterns of relationships between developmental systems for each of the adjustment levels?

Organization of the Study

The remainder of this study is organized into four additional chapters plus appendices. The first section of Chapter II will review applicable sociometric studies and rationale for using the technique as an assessment of current and future social adjustment. The remaining sections will review the literature on two developmental systems: interpersonal awareness and action pattern maturation from a neurodevelopmental point of view. Chapter III covers the methods and procedures of the study, hypotheses, design, and descriptions of evaluative measures. The results are

presented in Chapter IV. Chapter V will provide an overview of the conclusions of the study and allow the author to suggest implications for further research.

CHAPTER II
REVIEW OF THE LITERATURE

This review covers three areas. The initial section includes a rationale and substantiating literature review for use of the sociometric technique as an assessment of current and future social adjustment. The second concerns development of interpersonal awareness and emphasizes theory and process variables. A final section provides an overview of those aspects of action behavior of specific concern in this study: neurodevelopment, actions patterns, and critical periods.

Sociometric Measurement and Social Adjustment

The important first step in the development of sociometry was Moreno's publication of Who Shall Survive? (1934). This volume reports a variety of data-gathering techniques, including sociometric measures. These measures were designed specifically to provide a sensitive and objective picture of interpersonal relations existing within a group (Lindzey and Borgotta, 1954). The focus of this researcher's interest is upon use of sociometry to elicit responses from members of a given group concerning positive, neutral, and negative relations existing within the group. This entails each member privately specifying a number of other persons in the

group with whom he/she would like to engage in some particular activity and also a number of persons with whom he/she would not like to participate in the activity.

One measurement possibility inherent in the sociometric response is the effectiveness with which an individual interacts as a group member. The success of this interaction, which will be termed social adjustment, may be equated to various choice and rejection measures obtainable through sociometric techniques (Gronlund, 1959). An obvious difficulty involved in such a procedure is the danger of equating this measure to personal adjustment. These two variables may be expected to bear a relationship; however, in particular cases there may be striking discrepancies between them. For example, an individual's social success may be due to a lack of personal security that makes it impossible for him to countenance rejection or loss of love.

According to Lindzey and Borgotta (1954, p. 427), use of sociometric methods to measure social adjustment is implicit in Moreno's original formulations and although he did not refer directly to his measures as indicators of social adjustment. This area of interest is involved in much of his writing; "He implies that low choice status or high rejection status is evidence that the adjustment of the subject is not good. Concepts such as 'isolate,' 'neglectee,' and 'rejectee' clearly connote maladjustment."

Correlation between adjustment and sociometric status has been established in a series of studies. An early study by Bonney (1944) assessed a group of 80 children in an elementary school using the California Test of Personality and a multiple criteria sociometric questionnaire. He found the total adjustment score of the inventory correlating 0.49 with the sociometric status. Consistently, when the subjects were divided into quartiles in terms of social choice, the quartiles were arranged in a regular order with the high in social choice also the highest in mean adjustment scores. In a similar study, Grossmann and Wrighter (1948) found that sixth graders very high in sociometric status secured much higher total adjustment scores on the California Test of Personality than did a similar group of students very low in sociometric status. The upper and lower quartiles in social status of a large number (692) of ninth grade pupils were compared by Kuhlen and Bretsch (1947) in responses to the Mooney Problem Check List. The findings indicated that the pressing problems of the low in social status centered around social skills, lack of status, family problems, and dislike of school. A large number of fifth and sixth grade students were divided into three status groups by Baron (1951) and a comparison was made with their responses on a mental health inventory. In general, the inventory appeared to differentiate between the three status groups, with the

low in social status making more "unfavorable" responses than either of the other groups.

Studies concerning the range of variables to which sociometric response has been significantly related cover demographic, cultural, intellectual, performance, attitude, and personality variables. The studies afore mentioned are from the area of personality and do make a beginning case for the use of the technique as an indicator of current social adjustment. It is important to emphasize that the use of sociometry in the current study involves the additional premise that social adjustment in a group at an early stage is predictive of future adult outcome. In other words, peer popularity appears to be related to indices of later mental health (Cantwell and Baker, 1977; Gottman, Gonso, and Rasmussen, 1975). Unpopular children are more likely to be disproportionately represented later in life in a community-wide psychiatric register (Cowen, Pederson, Babigian, Izzo, and Trost, 1973). They also are more likely to receive bad-conduct discharges from the Armed Forces (Roff, 1961). Kohn and Clausen (1955) reported that the proportion of social isolates in adult manic depressives and schizophrenics was close to one-third, while in normal control populations, the proportion was close to zero. Manic depressives were as likely as schizophrenics to have been isolates. Surveys of research on suicide and attempted suicide done by

Stengel (1971) conclude that "social isolation is the common denominator of a number of factors correlated with a high suicide rate" (p. 28). Roff, Sells, and Golden (1972) studied a sample of 40,000 children in twenty-one cities. Except for the lowest socio-economic class, the relationship was highly positive between percentage delinquent and low peer-acceptance scores taken four years earlier. In these types of studies, authors emphasize the need to study which social skills relate to peer friendship.

Aside from peer rated social adjustment, another predictor of adult outcome appears to be the directionality of a child's behavior problems. Among studies reviewed by Ross (1974) using both normal and clinic populations, there is remarkably consistent agreement that a major part of the common variance is attributable to factors characterized as excessive approach or excessive avoidance behaviors. Other researchers (e.g., Achenbach, 1966; Eysenck, 1960; Patterson, 1964) have used aggression vs. withdrawal or externalizing vs. internalizing. These factors have also proven themselves powerful predictors of peer-judged social adjustment. Rolf (1972) demonstrated that externalizers tend to be less able to delay gratification, to be rated as less capable and more noxious by teachers, to be more actively disliked by peers, and to receive poor grades when compared to their own matched controls or to peers with primarily internalizing behavior disorders.

In addition, strong evidence from follow-up studies of outpatient clinic and hospitalized samples implies that children with externalizing behaviors are more likely to have poorer adult outcomes than internalizers. Garmezy and Streitman (1974) presented a comprehensive review of these follow-up studies. It is appropriate to highlight two in terms of predicting adult outcome and the relationship the directionality of a child's behavior bears to peer-relationships.

Morris, Escoll, and Wexler (1956) studied the adult adjustment of 90 children hospitalized with aggressive behavior disorders between 1925 and 1935 in a psychiatric unit of a Pennsylvania hospital. Follow-up of 66 cases, revealed that a large proportion suffered from serious psychological disturbances and that thirteen had become schizophrenic. Rated improvement at discharge was not predictive of outcome, for two-thirds had been rated as improved. One of the main variables predictive of poor outcome (in addition to their externalizing symptoms) was their inability to get along with peers in group situations while in the hospital.

Robins (1966) did a follow-up study of 500 children previously seen in a St. Louis child guidance clinic. She found that antisocial behavior (turning against others in the community or in the home) was the symptomatic behavior

which was most predictive of poor adult outcome. This finding was true not only for the adult antisocial but for schizophrenic outcome as well (74% of this latter outcome group had been referred to the child guidance clinic for antisocial symptoms).

In addition to follow-up studies of clinic samples are those which follow children from normal populations. Cowen, Pederson, Babigian, Izzo, and Trost (1973), mentioned previously, reviewed a group of studies and concluded that it is consistently demonstrated that there are negative "consequences associated with early school dysfunction, as measured by follow-up school performance data covering a three to six year period" (p. 440). More significantly they also reported data from their Primary Mental Health Project revealing that children whom they had "red tagged" as being at greater risk for clinical behavior disorders when in the first grade, when compared to their controls, were found after eleven to thirteen years to have disproportionately higher incidence of later appearance in their Monroe County Psychiatric Register. Furthermore, they found that when compared to clinician's predictions and teachers' ratings, peer ratings of social adjustment, using Bower's Class Play sociometric device (Bower, 1969), were by far the most powerful predictors of later behavior disorders and the need for future psychiatric treatment. Thus, third-grade peers had rated

future Register children in more negative terms than non-Register children. Similarly, future Register children had in their self-ratings reflected their peer judgments by choosing proportionately more negative roles for themselves.

It is of prime importance to note that in earlier reports on this Primary Mental Health Project (Yellott, Liem, and Cowen, 1969) the investigators had given more weight to achievement test data and to teacher and parent ratings of maladjustment than to sociometric peer ratings. Now, however, current thinking among investigators, without drawing formal conclusions in the absence of replication, agree that there is considerable support to the predictive utility of peer ratings in research with high risk children. These data are within-classroom ranks of peer and self-rated social adjustment for multiple target groups of vulnerable children, including those with primarily internalizing or externalizing behavior disorders (Rolf, 1976).

From the studies cited, sufficient justification exists to use peer assessment as both a current and a predictive indication of social adjustment. Other studies that also give credence to the use of sociometric techniques relevant to the present study focus upon interpersonal behavior and popularity. An early study was conducted by Hartup, Glazer, and Charlesworth (1967). They observed nursery school children and categorized social behavior as positive or

negative. The category of positive behavior included giving attention and approval, giving affection and personal acceptance, submitting to another's wishes, and giving things to another. Negative behaviors included noncompliance, interference, derogation, and attack. Using a sociometric instrument in two nursery school classes, these investigators found that positive behaviors dispensed to peers were related to acceptance scores in both classrooms. Negative behaviors dispensed were related to rejection scores in one classroom but not in the other.

Gottman, Gonso, and Rasmussen (1975) add further data to the theory that certain interpersonal behaviors may be related to how well a child is liked by peers. They examined social skills in third- and fourth-grade children assessed via a series of tasks and social behaviors in the classroom and sociometric friendship choices. They found that popular and unpopular children, in general, differed in their knowledge of how to make friends and on a referential-communication task. Other variables which were significant were grade and social class. These authors stress the importance of assessing social skills first validated by reference to a criterion such as sociometric position.

In summary, there have been treatment studies which used sociometric status as the criteria for selecting subjects and assigning them to treatment groups (Kranzler,

Mayer, Dyer, and Munger, 1966; Mayer, Kranzler and Matthes, 1967; Schiffer 1967; Thombs and Muro, 1973). Although, these studies seem to indicate that results after treatment have not shown much positive gain in sociometric status other factors may be responsible. The counseling intervention used did not take into account developmental factors that may have been specific in the groupings nor the relationship between the interpersonal awareness variables and physiological maturational readiness.

If these factors can be more clearly delineated, counselors may be able to approach developmental intervention and prevention from a more realistic framework.

Development of Interpersonal Awareness: Theory and Process

Only a decade ago little was know about the child's understanding of his social world (Bronfenbrenner, 1963; Wallach, 1963). In the past ten years an increasing interest has developed in the formal description of how children "come to know" intrinsically a wide ranging set of social experiences (Damon, 1977; Flavell, 1977; Kohlberg, 1969). Research in this area has gone under a variety of generic labels--role-taking, person perception, empathy, social cognition, and egocentrism--depending on the researcher's interest in a particular type of inference, process, and/or his theoretical orientation. For purposes of this review, the general area of social cognition, and specifically,

social perspective-taking, refers to the child's intuitive or logical representation of others, that is, how he characterizes others and makes inferences about their covert, inner psychological experiences (Shantz, 1976).

The Theoretical Foundations of the Development of Social Cognition

Two main approaches have been used by researchers to study and describe social-cognitive development. The social psychological approach includes theories dealing with self- and other conceptions of the adult, collectively known as attribution theory (e.g., Bem, 1972; Heider, 1958; Kelley, 1967). The focus of attribution theory is on the inferences one makes as to why a person acts as he does, i.e., causal attributions. For example, Heider proposes that the cause of an individual's action is inferred by the average adult observer as either a function of factors in the environment, or the person, or both. There are two classes of person factors: the ability attributed to the person (what he "can" do) and the intention and effort attributed to him (what he is "trying" to do). The factors are related multiplicatively: if either the ability factor or intention and effort factors are absent, no effective action occurs. One of the few points within the theory directed at the development of various attributions concerns the individual's assignment of responsibility for an action. For example,

Heider notes that Piaget's first stage of moral development indicates that children (like some adults) may blame a person for any bad consequences with which he is associated even though the consequences were unintended, whereas in the second stage, blame is assigned only for intended personal actions.

Kelley (1973) has elaborated the method by which the adult makes various causal attributions. Essentially an action or effect is attributed to one of the possible causes with which it covaries. For example, an adult will attribute the cause of a particular behavior to that individual in most situations and most of the time; or to situational factors, if a particular behavior covaries with a particular situation in most people most of the time. The point in this regard is that neither Heider nor Kelley has elaborated the developmental origins of such a naive psychology, but both have noted some possible points of contact with existing developmental research.

Another area of social psychological research is generically labeled "person perception." The question addressed is how an individual describes or categorizes another person or his actions and what dispositions or traits he attributes to another. There are two primary methods used in obtaining the descriptions: providing the subject with categories, adjective checklists, rating scales, or descriptive statements

which he then applies to various people; and "free-response" measures in which an individual merely describes, orally or in writing, various people.

The development of person perception has been infrequently studied. Earlier studies (Gollin, 1958; Signell, 1966) and some more recent studies (Scarlett, Press, and Crockett, 1971) were based on Werner's organismic theory. Werner (1948) views development as a process of greater differentiation, specification, and hierarchic integration. Likewise, a developmental shift is examined from egocentrism to perspectivism (Langer, 1970; Werner, 1948). The primary measures in person perception thus concerned egocentrism and the differentiation and organization of person concepts (see Rosenberg and Seglak, 1972). Some more recent developmental studies of person descriptions have not been based on any one theory (Flapan, 1968; Livesley and Bromley, 1973).

The second major theoretical approach is cognitive-developmental in that it begins with the working hypothesis that developing social concepts can be examined and ordered into developmentally structured categoreis or stages. Research within the development of social cognition has been drawn from the theories of mental development of Piaget (1970) and Werner (1948). The assumptions of cognitive-developmental theory have been presented by Kohlberg (1969): development involves basic transformations of cognitive

structure, defined as systems or relations, and such structuring is not the direct result of either maturation or learning. Rather it is a product of the interaction between the organism and the environment. In this regard, understanding others is not merely a matter of "learning more" about people in some quantitative sense; it is organizing what one knows into systems of meaning or belief. What one learns from experiences with others depends heavily on the structuring of those experiences by the person.

In order to gain a clearer understanding of the basis of developmental approaches, it is helpful to be aware of those aspects of Piaget's theory in detail, a brief description of those relevant aspects will be presented (Lavin, 1976):

1) The child's knowledge is not a copy of reality. The child actively constructs his knowledge and his conception of reality.

2) Mental operations develop in stages. "Stages imply distinct or qualitative differences in children's modes of thinking or of solving the same problem at different ages" (Kohlberg, 1968, p. 1021). Other characteristics of stages include (a) stages form an invariant sequence, which is universal; (b) each stage forms a "structured whole," i.e., "a given stage-response . . . represents an underlying thought-organization" (Kohlberg, 1968, p. 1021); (c) stages

are hierarchical integrations with higher stages built on lower stages, reintegrating the former structures into a new level of organization.

3) Once a stage of thought is attained, it may not necessarily be uniformly applied in all areas.

4) there are four basic mechanisms of intellectual development: (a) maturation; (b) experience with actions performed upon objects: (c) social interaction and transmission (through which the child may be exposed to reasoning at the next higher level); (d) equilibration: the process by which the child adapts to and interacts with his environment, through resolution of cognitive conflict.

Within this theoretical approach there are two recent models of interpersonal inference that embody a general theory of the development of social cognition. The most extensive model has been formulated by Selman (1973; Selman and Byrne, 1974). He has made an attempt to define the development of interpersonal understanding by beginning with the working hypothesis that developing social concepts can be examined and ordered into developmentally structured categories or stages (Selman, 1976a, 1976b). Selman's method of analysis (Selman, Jaquette, and Lavin, 1977) is structural in that it makes use of a theoretically postulated developmental sequence of basic patterns of social-cognitive organization which underlie the more overt, conscious, or

surface social conceptions used by the individual in his day-to-day relating. The common social developmental structure of logic assumed to underlie an individual's interpersonal awareness is his/her basic understanding of relations between selves and others, a form of developing awareness termed social perspective taking. Briefly, this construct represents the accumulation of information about what others think, feel, or intend, and additionally the qualitative development of a child's awareness of basic social relations (Selman, Jaquette, and Lavin, 1977).

Selman's research is concerned with how distinctive ways of reasoning about relationships (particularly friendship and peer group relations) can be ordered along a developmental continuum, so that a comparison can be made between the level of interpersonal awareness used by children and adolescents with social and emotional problems and that used by better functioning peers. Ideally, this developmental approach to social cognition can provide a nonrelativistic set of therapeutic and educational goals oriented to developing greater maturity of interpersonal understanding. For example, Lavin (1977) using Selman's model, has devised practical applications with disturbed and normal children to stimulate social awareness and communication skills by incorporating the use of sound filmstrips realistically presenting hypothetical social or moral dilemmas common in

children's lives. Using the filmstrip as a jumping off point, the children are then given an opportunity to talk about common interpersonal issues in their everyday lives. Within small groups they discuss various resolutions to the dilemma, and reasons for preferring one solution over another. The group leader also suggests other related interpersonal issues for the children to discuss. These small group discussions are supplemented by other activities such as role-playing and debates concerning the best resolutions to the dilemma.

Selman's approach to understanding the development of interpersonal awareness deals specifically with the changes in role-taking skills of the child and adolescent, conceptualized as structures or stages. Role-taking is seen as a cognitive process emphasized as a major means by which one person comes to know and understand another person (Baldwin, 1906; Kohlberg, 1969; Mead, 1934). As it is used in the field currently, role-taking refers to the activity of and/or ability to take the position of another individual and thereby infer his perspective. Or, more generally, role-taking is "understanding the nature of the relation between the self's and other's perspectives" (Selman, 1973, p. 5).

Since the majority of articles reviewed are studies in the development of role-taking, further clarification of

Selman's perspective is of value. First, the term, "role" is not used to refer to a class of shared behavioral expectations defined by a set of functions or traits, such as sex role or occupational role but rather is used more generically to include even momentary positions or relations between two or more people. It is a reciprocal relation in that at one moment a person is in the role of listener, and in the next, as speaker. He must form his message and continually monitor the ongoing message with his listener's perspective in mind. Thus, Piaget (1926) notes the egocentric (non-role-taking) child not only assumes he makes himself perfectly clear to his listener but also believes he understands perfectly when he is the listener. A second point can be drawn from this example: role-taking is viewed as a means of reaching an interpersonal goal such as informing, persuading, winning a game, or solving a social dilemma. True social interaction has been viewed as a reciprocal relation between individuals in which each person represents the goals, needs, and future actions of the other in order to act--to "cooperate" (Asch, 1952; Piaget, 1967, 1970). Third, role-taking usually refers to the covert, cognitive action of assuming the perspective of another person, whereas role enactment refers to actual taking on the role attributes of another and behaving overtly as the role demands (e.g. the child playing his mother's role). Fourth, role-taking

is sometimes assessed by the activity or attempts to take another's perspective rather than by the outcome of this activity, its accuracy. Finally, depending on the content of the role-taking activity, it may be referred to as affective role-taking, spatial role-taking, etc. (Shantz, 1976).

The general outline of Selman's model is presented here and in Appendix A (Selman, 1974b). Generally, he suggests that prior to 6 years of age the child is egocentric (stage 0) in that he makes no distinction between his view of social situations and possible alternative views. He may know that another can hold a different perspective, but he is unable to specify that perspective or merely assumes a similarity between his thoughts and the other's thoughts, intentions, and the like. Stage 1 is called social-information role-taking, and usually occurs between 6 and 8 years of age. The child recognizes that another may view social actions differently than he depending on the amount of information that each person has, that is, he sees others as interpreters of social situations. He also understands that he and the other can distinguish between intentional and accidental actions. At stage 2, self-reflective role-taking occurs (approximately between 9 and 10 years of age) in which the child is clearly aware that he and his inner thoughts, feelings, and intentions can be the object of another's thinking. He can figuratively step outside himself

and reflect on his own and the other's thinking and the other's thinking about him. Such role taking occurs only sequentially, however. At stage 3, the role taking of the child can occur simultaneously and mutually, as evidenced by children aged 10-12 in their response to social dilemmas. Around 12 years of age (stage 4) the perspective-taking ability of the adolescent extends beyond the two-person level to that of the social system, "the generalized other." The adolescent recognizes that both he and the other know that both can remove themselves from simultaneous role taking and view its dynamics.

This stage model of role taking is based primarily on children's verbal responses to short stories, some involving moral dilemmas and others simple social dilemmas. I will briefly describe one of the dilemma filmstrips. In the "Friends' Dilemma" (Selman, 1974a--First Things: Social Reasoning), Kathy must decide between keeping a date with her best friend or going to a big event with a new girl in school. Kathy has made plans to get together with her best friend, Becky, for this coming Saturday. On their way home from school, they walk with the new girl in town, Jeanette. Kathy and Jeanette get along all right, but it is obvious that Becky does not like Jeanette. Later that day, Jeanette, the new girl, calls up Kathy to ask her to go to the Ice Show with her. The only problem is that it is on Saturday

afternoon, when Kathy has already promised to play with Becky. Would Becky understand if she went to the event with Jeanette? Kathy must decide what the best resolution would be.

This approach has been used in public school classrooms. One of the very first programs of discussion of hypothetical moral dilemmas was carried out by Blatt and Kohlberg (1975). Significant increases in moral maturity scores were obtained in peer groups of 11 and 12 year olds, through a 12 week intervention where moral dilemmas were discussed during 12 one-hour sessions. A key role of the discussion leader-teacher was to present reasoning to the subjects one stage higher than that which each child was using.

Lieberman and Selman (1974) conducted an intervention study with second graders using a set of sound filmstrips depicting moral dilemmas (Selman, 1972--First Things: Values). There was a significant increase in the mean moral reasoning scores for the experimental group from pre- to post-test. At post-post testing, the experimental group showed even further gains in moral reasoning. This interesting result was attributed to the continued use by the experimental teachers of the "methods of small group discussion to resolve interpersonal and moral conflicts which arose in the classroom" (Lieberman and Selman, 1974, p. 7).

Cooney (1977) conducted an intervention using an expanded version of the First Things filmstrip series, which included eight interpersonal dilemmas in addition to the eight moral dilemmas. The 8-week intervention involved second and third graders. The intervention activities consisted of viewing the dilemma filmstrip, followed by small group discussions. The children discussed what they thought would be a good resolution to the dilemma, and why they thought so. The teacher circulated among the groups, occasionally interjecting a question to stimulate discussion. These small group discussions were supplemented by some large group discussions, role-playing activities, and debates concerning the best resolutions to the dilemma.

Enright, Colby and McMillin (1977) conducted a 22 week intervention, again using the First Things filmstrips, but added the variable of cross-age discussions. In this study, pairs of sixth grade students led weekly discussion groups with four or five first graders. The sixth graders met a second time each week with the researchers to discuss how to run a dilemma-discussion, and their awareness of interpersonal relations in the discussion groups. The training approach proved beneficial, as the sixth graders showed significant gains in their level of interpersonal conceptions, using the Selman interview (1974).

Lavin (1977) has used the filmstrips on a more informal basis with the children at the Manville School of the Judge Baker Guidance Center, a school for children with emotional, social, and learning problems. One group of the younger children (7-9 years of age) had 10 weekly filmstrip discussion sessions. A group of somewhat older children (10-12 years old) have viewed and discussed five filmstrips since the beginning of the 1977 school year (Lavin, personal communication, 1978).

When Cooney (1977) did her public school study, Lavin (1977) noted that it became evident that one of the things that could be looked at in an intervention was the change in social process. By observing how the children's social and verbal interactions were changing and developing, it is possible to begin to understand how and by what path the process of development occurs. Some of the relevant questions include: in what ways do the children interact differently; are their communication and persuasion patterns changing; are they more sensitive to recognizing a dilemma; and do they more naturally take the other person's perspective in that dilemma?

From her current pilot work at Manville School, she has informally observed a clear difference in these process variables between the younger children and the 10-12 year olds. The older children were ready in the first session to

talk about the relevant issues and to give reasons for their opinions. Although initially they directed all their comments to the adult leader, after a couple of sessions they began to talk more to each other.

On the other hand, she reports that the younger children have had great difficulty all along in dealing with the group discussion model. At first, they spent time bickering over who kicked whom under the table, asking to get a drink of water, or playing with the tape recorder. Selman and Jaquette (1976) had similar difficulties getting younger children to participate in group discussions. It appeared to them that they lacked the basic communication and social group skills necessary to successfully function under the relatively unstructured conditions of a discussion group. This deficit was exacerbated by the sometimes threatening nature of the content of the interpersonal dilemmas. With this realization, they combined effectively the use of communication skills games (McCaffrey, 1975) to develop the children's discussion and group skills without the added stimulation of affective overtones. Using a game which requires the child to describe a word for another child to guess, they used words and concepts from the filmstrip, such as friendship, trust and so forth, which starts them thinking about the concepts themselves.

Jaquette, Parkhurst, and Selman (1977) have presented a program of real-life, interpersonal problem solving through group organization and discussion as part of an approach termed developmental peer therapy. The aim is to develop interpersonal awareness in emotionally disturbed adolescents. The approach is termed developmental peer therapy; developmental because the aim is to develop the child's style of social interaction as defined through a sequence of increasingly mature stages of interpersonal awareness; peer therapy, because the use of higher levels of interpersonal awareness is seen as a therapeutic agent for both the self and those with whom the self interacts. The general method in peer therapy requires a structuring of the social situation which both facilitates the use of higher levels of interpersonal maturity while challenging the inconsistencies of less adequate levels of awareness. Thus far a pilot class (8 children ranging in age from 12-14) has been followed for a school year. Both initial and follow-up assessment of interpersonal awareness was undertaken for all members of the pilot class. Four of the eight students indicated substantial Stage 2 (see Appendix A, for stage descriptions) capabilities on a reflective interview, two demonstrated emerging Stage 3 capabilities, and one student demonstrated Stage 1 abilities. Because of the structure of class meetings, requiring a Stage 2 concern for coordinating

perspectives, the student at Stage 1 has indicated the least appreciation of the group meeting process. Of the others, it is clear that many fail to live up to their interpersonal awareness potential when they are faced with the stressful situation of utilizing those abilities to deal with their interpersonal problems (Jaquette, Parkhurst, and Selman, 1977). Basic research has validated these pilot findings.

Having proposed a developmental sequence of stages toward interpersonal maturity, a longitudinal assessment was begun of children referred to special schools for emotionally based learning disabilities (Selman, 1976; Selman and Jaquette, 1977b). When matched with public school peers on the basis of age, race, sex, social class and IQ, interpersonal maturity lags far behind in the sample of disturbed children when compared to the public school counterparts. Emotionally disturbed children were found to function at a level characteristic of public school children three to four years younger than themselves. Moreover, the disturbed children appear to be developing at a slower rate thereby increasing the size of their interpersonal lag.

Further refinements of this "clinical-comparative" approach revealed several interesting characteristics of interpersonal maturity among disturbed children. First, an analysis of the highest stage utilized by 21 disturbed children and their public school matches indicates that out

of the 17 cases represented in which there was a significant interpersonal lag, only 6 or 35% of the cases represented a real difference in highest possible competency. The other 65% demonstrated the same capabilities as normal children, but failed to utilize those capabilities as consistently. Because the measure of interpersonal awareness covers one's level of awareness across seventeen possible interpersonal issues, the overall score measure interpersonal performance not only highest competency. It is not the level of competency which is so much lower among the emotionally disturbed children. Rather, it is in the consistent utilization of more mature stages that the disturbed group appear to be lagging.

These studies represent a stage model of role taking that is based primarily on children's verbal responses to short stories, some involving moral dilemmas and others simple social dilemmas. There are other stage models of role taking changes during early and middle childhood by DeVries (1970) and Feffer (1970), that use different methods and which, on the whole, correspond quite well to Selman's stage descriptions.

Flavell (1974) has provided a stage model describing spatial role taking from preschool to adolescence. In addition to these stage constructions, Flavell (1968, 1974) has presented a general model of interpersonal inference

based on an information-processing approach. It describes sequential psychological events involved in social role taking. The four events are:

(1) Existence: The individual must be aware that he or another person might have covert psychological events (i.e., that such events do exist).

(2) Needs: The child must recognize that the present situation requires (needs) some inference about the other's psychological experience(s).

(3) Inference: This refers to any of the child's mental activities that result in a representation of another person's subjective experience and activities that maintain the representation. The term applies to simple discrimination of cues, integration of cues, probabilistic reasoning, and the like.

(4) Application: Flavell defines this as any subsequent behavior of the child as a consequence of his influence, such as adjusting his game strategy or accomodating his message to a particular listener about whom he has just made an inference (Shantz, 1976, p. 290).

Flavell (1974) has used this sequence as a microgenetic description of steps involved in a single act of role taking. It may also be viewed as a description of the sequence of an

individual's development in role taking. His model embodies a general theory of the development of social cognition which is not as extensive as Selman's. For purposes of this study, Selman's model will be used.

Action Behavior: Neurodevelopmental Aspects

The Gestalt-Concept of Brain Function

The function of the brain is to relate the organism to the environment. This functioning and development is the result of the interaction of the organism with the environment. In order for an individual to attain complete neurological organization, the relation to environment must be total. It must involve all areas of sensory input and motor output which provide the brain with six functional attainments at levels unique to human beings. This means sensory stimuli which culminate in the development of the visual skill of reading; the auditory skill of understanding of symbolic spoken language; and tactile identification of objects using a hand consistent with hemispheric dominance (stereognosis). Full neurological organization includes the development of hemispheric dominance which normally resides in the same hemisphere for all six functions. Taste and smell, although important, are relatively subordinate sensory functions in man. The motor skills with which the individual responds to the environment culminate in walking, symbolic spoken language, and symbolic written language.

The rate of neurological growth varies among normal children so that capability in the six functions (walking, talking, writing, reading, understanding spoken language, and stereognosis) is attained by the age of three years in the superior child, six years in the average child, and eight years in the slow child (see Appendix C, LeWinn, Doman, Doman, Delacato, Spitz, & Thomas, 1966).

The skills in performing these six basic functions are at a very crude level at birth because they are related to the level of function of the central nervous system of the new-born child. This first level is largely in the brain-stem including the brain-stem reticular system. Gross motor functions are mediated at this level, and the reticular system coordinates gross bodily movements and such action as orienting responses (e.g., postural reflexes and auditory locating reflexes). In the absence of deterrents and with adequate environmental stimuli, these capabilities increase progressively as the level of brain function diffuses upward through the pons and midbrain to the highest level of the cortex (Bronson, 1962; LeWinn, et al., 1966; Luria, 1973; Nash, 1970). This hierarchial functional organization is illustrated graphically in Appendix D (Luria, 1973, p. 47).

The second level of organization in neurodevelopment is the subcortical forebrain, which includes the hypothalmus, thalmus, and limbic system. The functions of this level

include mediation of the more refined sensory discrimination and finer motor coordination than is carried out at the first level.

Cortical development represents the third level. Neurodevelopment in this area corresponds with mediation of highly developed motor activities as well as perceptual and cognitive functions. It plays a crucial role in exploratory behavior and thus is most important in human development because of the fewer inborn responses to specific stimuli. In higher animals the cortex is essential to exploratory activites. Also of importance to the present discussion is its role in the emotional and motivational elements in behavior and in control of attention.

The cortex matures slowly and different regions of it mature at different times. This "bit-by-bit" process of maturation continues through puberty and until the late twenties in the frontal cortex (FLS) (Luria, 1973; Pontius, 1974, 1976).

Critical periods

It is logical to relate psychological development to maturation of the nervous system. The maturational basis for psychological readiness is presumably to be found here (though not exclusively). The critical period for a given psychological development commences when that part of the Central Nervous System concerned has reached a minimum state

of maturation and becomes functional (i.e., when myelination has occurred). Before this time, the critical event is ineffectual because the cortex is not ready to "receive" (Nash, 1970, p. 130). If the critical event does not occur during the optimal time of cortical readiness, this area may be preempted by some other function and the input from the tardy critical event may be "crowded out"--the cortex is less receptive or even unreceptive. The function may be able to find some other location in the cortex, but if the assumption is that the cell assemblies (Hebb, 1949; Luria, 1973) are mostly in association area with some structural relationship to a primary area of the cortex, then any other location may be less accessible (less efficient) in relation to the primary area. Further, if the event is long delayed, more and more of the cortex will have been taken over and will be less available.

Critical periods can be ordered under three headings. The first is a period when the child is grossly sensitive to unpatterned stimulation, which affects its later emotionality; the time is immediately after birth. The second is a period that depends on pattern discrimination and effects primary socialization; it occurs by the end of the first year of life. The third period requires a complex or rich perceptual and behavioral environment involving fine pattern discriminations and motor coordinations and influences the development

of learning abilities; it begins later than either of the others and its upper limit is not defined (Bronson, 1965; Luria, 1973; Nash, 1970). The quality of experiences during these early developmental phases, in interaction with the constitutional predisposition of the child, will affect the fundamental nature of the child's later involvement with the world; experiences beyond the critical periods act only to influence the modes and areas in which these orientations find expression (Bronson, 1962).

For purposes of the current study the two fundamental aspects of personality hypothesized to be significantly determined by events in the first three years of life are to be assessed in the sixth year of the child. These aspects are involvement with others (interpersonal understanding) and coping with problems presented by the environment (action pattern behavior). Bronson (1962) presents longitudinal data relating the former characteristic to developments during the first year of life, and the latter to influences effective in the third year. These findings are in general accord with the emergence of critical developmental stages described in Erikson's (1959) terms; events during the first year engender a "basic sense of trust," or maladaptively, of distrust. During the dependent orientation of this earliest stage, the quality of mothering affects the infants's primary orientation towards the world. Under less optimal

circumstances, his primary orientation towards others is marked by ambivalence and uncertainty, an insecurity that will influence his approach to new developmental tasks in later growth periods.

Bowlby (1960) has stressed the primacy of this early attachment to the mother in a careful review primarily concerned with theoretical issues beyond the scope of this paper. His presentation of various studies of mother-child separation presents rather clear evidence that this attachment process is strongly developed by at least the second half of the first year of life, although the diverse expressions of this attachment continue to emerge through early pre-school years.

Sullivan (1953) has also described the development of early mother-child interactions with great sensitivity, although he was less emphatic regarding the irreversible nature of earliest learning. His interpersonal approach which Selman (1977a) incorporates in his work, describes developmental stages largely in terms of increasing cognitive complexities rather than emerging motivational systems; thus, relearning through later experience appears more probable.

During the second and third years, the maturation of cognitive and motor capacities support the developing impulse towards active exploration and mastery of the environment.

Erikson (1959) describes events in this stage as critical to the acquisition of a basic sense of autonomy, or its opposite, a sense of shame or doubt. A sense of autonomy implies confidence in one's own capacities for mastery; the feeling that one can cope independently, and that impulses can be channelled towards satisfaction without constant referral to others for approval or guidance.

The frontal lobe system (FLS)

The critical period of concern in the current section is the final period. Of parallel structural interest are the frontal lobes or, to be more precise, the prefrontal divisions of the cortex. It is this portion of the Central Nervous System which undergoes development last and can occupy up to one-quarter of the total mass of the brain (Luria, 1973). Recent observations relating the dynamics of development of the prefrontal cortex are illustrated in Appendix E (Luria, 1973, p. 87). As the figure shows, the rate of increase in the area of the frontal regions of the brain rises sharply by the age of three and a half to four years, and this is followed by a second jump towards the age of seven to eight years. Development differs from that of the critical periods which precede it in that (1) the critical period is less sharply delineated, (2) effects of deprivation are probably relatively more reversible, and (3) the later effects appear in behavioral areas directly similar to

those in which the critical experiences occur. These characteristics are related to the absence of "higher-level" systems to inhibit, or to build upon, integrative networks involved in this third period.

These prefrontal divisions of cortex have two-way connections not only with the lower levels of the brain-stem and diencephalon but also with virtually all other parts of the cerebral cortex. Numerous investigators have described the abundant connections between the frontal lobes, on the one hand, and the occipital, temporal and parietal regions as well as with the limbic regions of cortex (e.g., Burns and Chapman, 1966; Luria, 1973; Pribram, 1971).

The morphological details concerning structure and connections of frontal lobes explain the contribution made by these structures to general organization of behavior. Early observations on animals from which frontal lobes have been removed have been undertaken by numerous classical authorities on physiology and neurology. These studies are reviewed by Luria (1973) and Burns and Chapman (1966). For obvious reasons, opportunities for experimenting with man do not compare with that available on animals; however, extensive material has been collected on the role of the frontal cortex in regulation of human mental processes.

The chief distinguishing feature of the regulation of human conscious activity is that this regulation takes place

with close participation of speech. Whereas the relatively elementary forms of regulation of organic processes and even of the simplest forms of behavior can take place without the aid of speech, higher mental processes are formed and take place on the basis of speech activity, which is expanded in early stages of development. It is, therefore, natural to seek the programming, regulating and verifying action of the human brain primarily in those forms of conscious activity whose regulation takes place through the intimate participation of speech.

Two independent series of investigation have shown conclusively that the frontal cortex participates in the generation of activation process for behavior arising from the most complex forms of conscious activity; these are affected by the immediate participation of speech. Walter et al. (1964; 1966) showed that every act of expectancy evokes characteristic slow potentials in the human cerebral cortex increasing in amplitude with an increase in the likelihood of materialization of the expected stimulus; decreasing with a decrease in the likelihood; and disappearing as soon as the task of awaiting the stimulus is discontinued. Characteristically these waves, which he called "expectency waves" appear primarily in the frontal lobes of the brain from which they spread throughout the rest of the cortex.

Almost simultaneously with this discovery, the Soviet physiologist Livanov and his collaborators (Luria, 1973) by a different method, confirmed this intimate participation of the prefrontal regions of the brain in the most complex forms of activation evoked by intellectual activity. By recording the action potentials reflecting excitation of fifty, or sometimes as many as 120 or 150 simultaneously working points of the brain by means of a special multichannel apparatus, they showed that these complex mental tasks lead to appearance of a large number of synchronously working points in the frontal lobes.

It has been concluded that the role of the prefrontal cortex in the synthesis of systems of stimuli and creation of a plan of action is manifested not only in relation to currently acting stimuli, but also in formation of active behavior directed towards the future.

Action pattern behavior and form analysis: Developmental aspects

The present method of approaching the research problem under investigation suggests neither a narrow localization approach nor the holistic functional approach in attempting to understand behavior whose advent appears to coincide with Central Nervous System maturational readiness. Mental function is conceived as a complex, hierarchically structured functional system which may suffer from the destruction of

any of its links (Luria, 1966; Pribram, 1971; Pontius, 1973a); however, when one or another link has been damaged, is lagging developmentally, or simply is not matured yet in such a functional system, the whole system will be effected in a particular way, depending on the location of the non-functional link. The symptom-complex then will be different and detectable only by qualitative analysis of each symptom. According to Luria (1973), Milner (1964), Pontius (1973a) and Teuber (1964) symptoms and signs most consistently found in immaturity or damage to the frontal lobes are the inability to switch between various principles of action--and the inability to reprogram an ongoing activity upon verbal command. There is no impairment of starting a new activity--only of reprogramming an ongoing one. (Perseveration, an unspecific sign of damage to various parts of the brain, refers to a continuation of the action itself, whereas this inability to switch pertains to principles of action).

Dr. Anneliese Pontius, a psychiatrist coming out of the Jungian school of thought put forth the following hypothesis that goes beyond the idea of dysfunction from a disease model approach to behavioral lag and incorporates a developmental framework. She states (Pontius, 1973b):

> I would like to offer the hypothesis that there appears to exist an analogy between the only specific signs of frontal-lobe and/or possibly caudate-nucleus dysfunction on the one hand and some essential

> but as yet overlooked aspects of Minimal Brain Dysfunction (MBD) on the other hand. Such specific aspects of MBD may be based on a fixation at the phase of normal immaturity, on maturational lag, or on some as yet unknown pathology of the frontal lobes and/or caudate nucleus. Yakovlev and Lecours (1967) found that several forebrain structures take two decades and more to myelinate. Luria and Homskaya (1964) pointed out that immaturities of the frontal lobes are related to specific difficulties in the normal small child, who cannot reprogram an ongoing activity on verbal command earlier than the age of 24-26 months; for somewhat more complicated reprogramming tasks, the normal child needs to be at least four years old. Lebedinskaya and Polyakova (1959) described similar difficulties in four-year old children. (p. 61)

Her conceptual model tries to integrate psychiatric and neurological factors and was initially abstracted from clinical experience in an effort to more clearly view the catch-all diagnosis of MBD which has been generally defined behaviorally only, not in specific neurophysiological terms; and also quantitatively, not qualitatively. The core symptom of MBD is "hyperactivity." If defined in quantitative terms, through Birch's (1973) motion studies, "hyperactive" children (which is often used synonomously with MBD) actually move the same amount or even less than normal children, but their movements are "more random"; and therefore such children only seem to be more active than normal ones. Other researchers such as Wender (1971) draw attention to the fact that there are "hypoactive" MBD children. In light of difficulties to including even the core symptom of

"hyperactivity" consistently in the non-specific and prevailing quantitatively determined diagnostic catch-all diagnosis of MBD, Pontius (1973a) suggests that in the MBD child there are specific aspects of the syndromes of the frontal lobes involved which are similar to FLS immaturity during normal early childhood development.

Recalling that immaturities of FLS are related to specific difficulties in the normal child who cannot reprogram an ongoing activity on verbal command earlier than the age of 24 to 26 months, and for somewhat more complicated reprogramming tasks, the child needs to be at least four years old, she suggests that this inability is related to improper interaction between the first and second signal in Pavlovian terms; i.e., between the system concerned with directly perceived stimuli and the system dealing with symbolic verbal elaboration (Pontius, 1973a).

The focus of the current study deals specifically with normal development and possible lag which may resemble earlier stage behavior related to an underlying lack of physiological readiness. Pontius (1974) has specified an instrument capable of detecting FLS immaturity as revealed by action behavior through a qualitative analysis of form of action as revealed in narratives. The starting point is the fact that between two to four years of age there exists a positive correlation between neuroanatomical phases of FLS

development (Yakovlev and Lecours, 1967) and developmental phases of actual action behavior (Luria and Homskaya, 1964). She hypothesized that such a positive correlation exists also between maturational phases of the FLS and the quality of the form of action behavior as revealed in narratives. This refers to the quality of the form of the story telling activity itself (verbal action) and/or to the quality of the formal action patterns as revealed in the stories.

A test sensitive enough to detect a subtle degree of frontal lobe immaturity as revealed in the action patterns of stories may be sufficiently sensitive through childhood and into adolescence. Existing tests, to date use tasks too simple to detect subtle degrees of immaturity. They measure a relatively simple type of the ability to switch between various principles of action. The Wisconsin Card Sorting Test (Grant and Berg, 1948) and the Trail Making Test B (Reitan, 1955) order color, number, and form or numerical and alphabetical serialization, respectively. These tests have been shown to discriminate between hyperkinetic and nonhyperkinetic groups (Clarkson and Hayden, 1971) and provided "blind" experimental support for Pontius hypothesis that the MBD child, like the small child with his still immature frontal lobes, is able to start an activity but cannot stop or reprogram an ongoing activity.

Since the FLS specifically mediates the form of action patterns essential for mature interaction with others, assessment of the neurodevelopmental level the child's functioning might prove to be a valuable correlate with developmental level of interpersonal awareness within the three social adjustment levels. Immature forms of action patterns have been pointed out in some types of MBD (Pontius, 1973a, b) and of juvenile delinquency (Pontius, 1972, 1976). Immaturity of action patterns found in normal children may persist into adolescence to a more subtle degree in seemingly normal youngster (Pontius, 1974), and is supported by neuro-anatomical findings (Yakovlev and Lecours, 1967; Zambelli, Stamm, Maitinsky, and Loiselle, 1977). Early identification of children with a neurodevelopmental lag is essential to offering remedial intervention.

Pontius (1974) initially analyzed the form of action as revealed in 354 children's stories collected by Pitcher and Prelinger (1963). Each child was asked to tell two stories at least a month apart. There were 137 participants (70 girls and 67 boys) age two to five years. She scrutinized the verbal action and/or the form of action patterns, as narrated. The degree to which such immaturity may appear in the stories of different length is not essential. The analysis showed four developmental stages of patterns of action (see Appendix F, Pontius & Ruttinger, 1976, p.

512-515 for stage descriptions and examples). It was revealed that the percentage of stories reflecting FLS immaturity (as shown through the inability to switch the principle or plan of action of an ongoing activity) dropped in normal children between ages three and four from about 50% to 25% and by age 5 to 16.7%. These findings correlate positively with the known neuroanatomical spurt of myelination of various structures of the FLS around age four.

It is important to consider the child who might be functioning in the first grade at developmental level-1 or 2. What follows is a hypothetical vignette:

> Jon is in the play area of his classroom and he is operating under the general principle of action that play time is for play and the specific action that toys are to remain in the play area. Suddenly in the middle of his plan to make a drama with hand puppets, his teacher asks him to return to his seat and finish his math assignment.
>
> Such a child may not be capable of reprogramming his action on verbal command, of switching from his plan and principle guiding his ongoing action to a new plan of action with a new overriding specific action. Being interrupted by the verbal command--but not reprogrammed by it--he leaves the play area with the puppets still on his hands. He is incapable of constructing a new plan, even though he knows he should. He also knows, all through his behavior, that it is wrong to take things from the play area, and he has had no such intentions. He had done this a number of times and has been reprimanded previously and now again. Afterwards he feels genuinely guilty and especially upset about what he has done. When asked, he says he

> feels he is a bad boy, everybody tells him so, he has done something bad again, he knows it is bad, but he does not know why he does it. He does not want to act this way. He does not even like this puppet, he just took it from the play area. He feels puzzled and at a loss, and indeed may have suffered a genuine loss of mastery over his actions. He is unable to reprogram his actions on verbal command, tries in vain to maintain the initial set of his action plan, which has now become inappropriate. Such a child is able to start an activity, for instance, on verbal command, but cannot stop or reprogram it when engaged in another ongoing activity.

The neurodevelopmentally lagging child is believed to be naughty, impulsive and willful and is often blamed for his inappropriate behavior when he really lacks control. It takes little imagination to envision the beginning of a vicious cycle in the child's attitude towards himself (Pontius, 1973a).

The close interrelationship between action and thinking is illuminated by Lashley's (1958) experiments on tongue movements during thinking. These provided evidence that neural activities in thought are identical with those of action, save for the lack of facilitation of the final motor path. Also pertinent in this context is the observation of Luria (1973) that in patients with frontal lobe lesions there is impairment of the regulatory function of speech (which in turn is interrelated with thought processes). Such a patient cannot direct and control his behavior with the aid of speech, either his own or that of another person.

Other investigators have looked at language development by way of analyzing verbal tense elements as an important developmental feature which a child must learn in order to achieve mastery over action possibilities in the environment which are available to him (e.g., Forisha, 1975; Myklebust, 1973; Teece, 1976).

Teece (1976) confirms the value of play activities for language development and illustrates the nature of linguistic interaction among groups of children. One measure she used was the quantity of verb tenses in declarative sentences elicited during play activities of five year olds, 57% of verbs were in the present tense, 20% past tense, 15% future tense, and 8% modals. She was trying to produce measures of egocentric and socialized language. Piaget's hypothesis (1926) was that egocentric language was language which accompanied action. It was decided that a child using a present tense could be thought of as accompaning rather than structuring action with his language. The future tense suggested, however, an intervention to act which was crystallized by langauge. Her study falls short of Pontius work in that she is not looking at patterns of verb usage and appropriateness of form. Her conclusion that there is evidence that the five year old child, through interaction with people and things is learning to decenter thinking by the developing relationship between activity and language gives "blind" support to the direction of Pontius's work.

The investigation proposed will use Pontius' neurodevelopmental method of identifying ability to switch between principles of action.

Description of the use of sociometric technique as an assessment of current and possible future adjustment has been presented. Also, literature on interpersonal awareness development in children has been reviewed. Finally, action behavior from a neurodevelopmental viewpoint has been considered.

An assessment of peers nominated in first grade who have high, median, or low status in group will provide an opportunity to describe patterns along the developmental continuums that may be characteristic of high and low functioning children. Ultimately, it is the intention of this researcher to create developmentally constructive counseling rationales for normal children and children with special educational and emotional needs which may be a result of emotional and/or functional maturational lag.

CHAPTER III
METHODS AND PROCEDURES

The purpose of this study was to address the issue of prevention with the assumption that if a child with developing maladjustment problems can be detected early, help can be provided most economically and effectively. Some beginnings have been made in this wilderness by the Office of Economic Opportunity programs such as Project Head Start and Office of Education programs of compensatory education for disadvantaged children. This study is an effort to develop a platform or position from which one can begin to organize and act. The process of identification must ultimately carry with it the seeds by which the identified are helped. Clearly there is a need to describe developmental differences not through preoccupation with the pathological, but with a broader understanding of its relationship to adaptation in order to create a theoretical framework for intervention which is operational in nature.

The hypotheses, screening procedures and instruments, and descriptive developmental instruments are reported in this chapter. The chapter concludes with an exploration of how the data were collected and analyzed.

Hypotheses

The following hypotheses were generated from research questions posed in Chapter I (p. 9). As stated here, level of adjustment refers to first graders who are judged as having high, middle, or low status in group on the basis of teacher, peer, and self perception ratings. Stated in null form:

1. Level of adjustment has no relationship to the developmental patterns of action behavior expressed in form analysis of narratives.
2. Level of adjustment has no relationship to developmental stage of interpersonal understanding.
3. Level of adjustment has no relationship to perceptual-motor functioning.
4. Level of adjustment has no relationship to skills prerequisite to studying and learning in school.
5. There are no significant relationships between level of adjustment and the descriptive variable scores when considered together.
    a. Low adjusted functioners who are seen by peers as negative, but see themselves positively are no different than other low adjusted functioners on the developmental variables.

b. Low adjusted functioners who are seen by classmates as negative, and who see themselves negatively are no different than other low adjusted functioners on the developmental variables.

c. High adjusted functioners seen positively by peers and teachers and negatively by themselves are no different than other high adjusted functioners on the developmental variables.

Screening Instruments

Selection of individuals was accomplished with the combined scores of three screening instruments. The Behavior Rating of Pupils was administered to teachers. The Class Pictures and A Picture Game were administered to students.

Behavior Rating of Pupils

The teacher perception instrument, Behavior Rating of Pupils, currently used for all grades in the screening procedure is the third edition of an instrument developed in early phases of Bower's study (1960, 1969). It is being included on the basis of Bower's (1974) findings that teacher judgements of emotional disturbance were very much like the judgement of clinicians. Nearly all of the currently available data on this instrument were collected in experimental

adminstrations of the first form. Only one of the eight items in the scale has been changed substantially in the revisions of the first scale.

The third and current edition of Behavior Rating of Pupils is a simplified Q-sort system in which the teacher places the names of all pupils in her class on an appropriate normal distribution ranging from a rating of one (positive behavior) to seven (negative behavior). Seven of the original eight behavior statements have been retained in this third form and are as follows:

A- This pupil gets into fights or quarrels with other pupils, more often than others.

B- This pupil has to be coaxed or forced to work or play with other pupils. He or she will actively avoid having any contact with classmates.

C- This pupil has difficulty in learning school subjects.

D- This pupil makes unusual or immature responses during normal school activities. His behavior is unpredictable or inappropriate for his age.

E- This pupil works extremely hard in learning school subjects to the exclusion of any other interests or activities. This pupil pours all his energies into school work.

F- This pupil behaves in ways which are dangerous to self or others. This pupil will get into situations in which he or she may be hurt or frightened.

G- This pupil is unhappy or depressed. He or she may cry easily, be inattentive, or daydream.

H- This pupil becomes upset or sick often, especially when faced with a difficult school problem or situation.

To provide specific evidence on the validity of the teacher's ratings for the identification of students who are emotionally handicapped, two studies (Lambert and Bower, 1961, 1974) were completed each utilizing approximately 200 pupils at each of four levels (first grade, the middle grades--4, 5, and 6, 7th grade, and 10th grade). In each study there was a screened group composed of students who had extreme scores on two out of three of the preliminary screening instruments. The ratings earned by each screened group on Behavior Rating-1 were compared, item by item, with ratings earned by the remaining unscreened pupils in the same classes. On all but one of the eight items, there was a significantly different distribution of ratings on items between the distribution of teacher ratings earned by a group of pupils screened on three measures as emotionally handicapped (EHC) and the ratings earned by a group of pupils indicated by the same three measures to be not emotionally handicapped (NEHC).

The second study (Lambert and Bower, 1961, 1974) compared students earning scores above and below the median total score (the sum of the item-ratings for an individual pupil). The first and tenth grade groups of pupils having total scores above or below the medians for their classes had significantly different distributions of ratings on each item. The direction of difference between pupils with

above-median scores and those below-median scores was consistent in both grades for all eight items ($p<0.01$). Breaking the seventh grade pupils into three groups (high, middle, and low) there was also a significantly different distribution of ratings on items for total scores on Behavior Rating-1 and the distributions of subgroups ($p<0.01$). These comparisons for 4th, 7th, and 10th grades indicate that there is a significantly different distribution of ratings on items for the emotionally handicapped classification as well as for high, middle, and low total scores.

The Class Pictures: Peer-ranked-Social Adjustment

The Class Pictures is a non-verbal sociometric device designed to determine the amount of negative peer perception for any child in a primary classroom (grades K-3). It is individually administered. The presently available form is the third edition. The first two editions, and the data obtained in their experimental use, are described here to provide a developmental history of the current form.

Each child in the classroom was asked to imagine which of his classmates was most like each of the children in each of 20 pictures. After every child was asked for his choices, a count was made of the times each pupil was picked by his classmates for all of the pictures. Then a count for each pupil chosen for negative behaviors was made. By dividing the number of negative choices by the total number of choices,

a percentage was calculated which indicated amount of negative perception of each pupil by his peers.

The first item study (Lambert and Bower, 1961, 1974) of Class Pictures was completed on a sample of approximately 650 children in grades K-3. The children came from middle and lower-middle class families. Of the total population participating in the screening, 11 per cent were identified as emotionally handicapped, with at least two out of three ratings negative. With a combination of screening data and prior teacher nominations 89 pupils were nominated. A random sample from the school population which were not identified by these criteria were then selected. The total sample for item analysis contained 178 children for each grade. It was found that scores on the first edition of The Class Pictures differentiated collectively between pupils who were thought to be emotionally disturbed and those who were part of a typical school population. Even though the individual items did not always differentiate, the total scores could be used as an appropriate rough screening score.

For the purpose of obtaining reliability of measurement The Class Pictures was administered on two occasions three weeks apart. The test-retest reliability scores of children in grades 1-3 range from 0.76 to 0.86.

To improve the discriminating power of The Class Pictures, the results of the item study of the first edition were utilized in revising some items and in adding eight new items to a second edition. It was possible to choose 20 items from the 28 in the second edition of The Class Pictures which could be used as a "final" edition. In selecting items, attention was given to choosing pictures which represented as many different types of maladjustment and adjusted behavior as feasible, as well as selecting those with the highest discriminating power. Nine of the ten discriminating items were found to differentiate significantly emotionally handicapped children from those who are not.

A Picture Game

A Picture Game (Lumbert and Bower, 1961) has been developed to provide a measure of self perception at the primary grade level. Self rating tests for children from five to eight are difficult to produce because of, first, the child's undeveloped reading skill and, secondly, the difficulty of presenting a task which is meaningful to the child but also indicative of how positively or negatively he sees the world about him.

A Picture Game was developed in order to locate children with a variety of behavior problems, quickly and without prerequisite of psychological sophistication. Its purpose is to screen children for subsequent diagnosis and evaluation.

The three types of ratings used in this screening process--teacher perceptions, peer perceptions, and self perceptions--can provide some diagnostic information, but diagnosis is not a part of the screening program.

The self perception instrument consists of 66 pictures, including two sample pictures. Each picture is illustrative of normal home and school relationships and events. With the exception of the two sample cards and the first ten pictures, each picture is emotionally neutral in the portrayal of the relationship or event. The child is asked to sort each picture into one of two categories: "This is a happy picture" or "This is a sad picture." The child categorized each picture in accordance with his perception of it. The first 10 pictures the child sorts are stereotypes obviously happy or obviously sad situations. They are included in the test to check on the child's understanding of the task.

The Picture Game has not progressed through a series of "editions." Minor improvements and changes in the illustrations were accomplished early in development of the materials. Item analysis, to ascertain the power of individual items to discriminate emotionally handicapped children from those who are not, was undertaken with the same criterion groups used for the item analysis of The Class Pictures. It was found that individual items cannot be taken as predictive of

emotional handicap. A sign test indicated however, that when items are taken collectively, emotionaly handicapped boys and girls pick significantly more items as "sad."

Test-retest reliability (Lambert and Bower, 1961) with a three week interval suggests that there (Pearson r=0.89, n=180) is enough consistency in the responses of primary school pupils to the pictures to warrant the hypothesis that some reasonably stable characteristic is being measured.

Characteristics of the Battery as a Whole

The use of three measures in the screening process is based on the assumption that three different perceptions of pupils are necessary in order to identify children with a variety of emotional difficulties. This has been proven to be a tenable working hypothesis. Intercorrelational studies of the screening measures have shown that each is testing different aspects of pupil behavior (Bower, 1969, 1974).

In 1958 a criterion-related validity study was completed and reported in Bower (1960). Using Bower's screening process which was also used in the current study, emotionally handicapped children (169 boys and 56 girls) were identified from about 5,500 children. Evidence for the validity of this selection was supported by a second battery of tests. The second battery included a Wechsler Intelligence Scale for Children (WISC), a Bender-Gestalt Test, and a Draw-a-Person test. In addition, many psychologists adminstered a

Rorschach and other projective tests. Of the 225 previously selected emotionally handicapped chidren who were later tested by psychologists, two per cent were found to be mentally retarded and ten per cent were thought to have minor or no serious problems. The importance of these data is that children screened in this process are found to represent various types of behavior disturbances and manifestations of emotional maladjustment. Use of the screening materials results in identifying a comprehensive group of children of whom 88 per cent were confirmed by clinical study to have moderate-to-serious emotional problems. Even though the psychologists knew that the children had been previously identified as emotionally handicapped, concurrent validity is inferred from the study.

After the initial screening was completed in the Spring of 1958, selected school districts were asked to list names of pupils thought by the administrative office and guidance personnel to be emotionally handicapped. Names were listed and later checked with lists of children identified as emotionally handicapped by two of three ratings at the negative extremes of the distribution. At the primary grades 63 children were nominated from a group of 650 pupils. Nine were absent during part of the screening. Of 53 with complete screening data, 66 per cent were identified on two of three screening instruments, 25 per cent were identified

on one instrument with at least one additional score which was borderline, and 9 per cent were missed by the screening procedure (Lambert and Bower, 1961).

To further establish concurrent validity criteria Lambert (1963) developed a set of clinical indicators based on independent assessments of 300 pupils by child psychiatrists, clinical psychologists, and psychiatric social workers. Results of the validity investigation confirmed the value of the teacher, peer, and self ratings as assessments of nonintellectual components of elementary school behavior. Furthermore, a later study (Kendall and Lambert, 1968) showed that there was a high degree of reliability among these independently collected criterion measures when canonical regression analysis was used to determine the agreements across clinical frames of reference.

When the second grade subjects in the above study were in the ninth grade and the fifth grade subjects were in the twelfth grade a follow-up phase was instituted to establish the predictive validity of the screening measures (Lambert, 1972). More than half of the 300 original pupils were located in 38 secondary schools. An analysis of variance to determine whether the mean elementary intellectual and nonintellectual scores differed significantly for high school criterion measures was performed. The criterion score distributions made it possible to assign relatively

equal numbers of subjects to high, middle, and low high school status groups for each measure.

Teacher, peer, and self-ratings (the nonintellectual scores) from Bower (1969) were found to be good predictors of the extent of unsuccessful status, and differentiated well between subjects assigned to the most successful and least successful groups. Analysis of between-groups variance of subjects assigned on the basis of factor scores on the four high school behavior dimensions showed that the differences between the groups for high school adjustment status and scholarship were significant.

These subjects were again used to estimate the comparative predictive efficiency of the intellectual and nonintellectual indicators when employed singly and jointly in the prediction of various criteria of effective high school funtioning, and to thereby establish the importance of the intellectual attributes as predictors of high school status (Lambert, Hartsough, and Zimmerman, 1976). Since the objective of this study was the determination of the degree to which variance in a dependent measure (in this investigation the six high school criteria) could be accounted for as either unique or joint function of each of the number of mutually correlated independent variables (teacher, peer, and self ratings, WISC IQ and measures of achievement and grades), the use of multiple regression was the method of choice.

It was found that the behavioral factors assessed by the nonintellectual measures are as highly related to the achievement of scholarship and successful status in high school as they are to unsuccessful functioning and school adjustment problems. The screening instruments were comparatively the best predictors of future high school status when compared to intellectual predictors ($p=<0.01$). In combination with achievement scores and grades a small but significant increment is added to the predictive power of the nonintellectual measures.

Screening of Subjects

The screening of subjects for the study was completed in Broward County first grade classrooms which are included in or affected directly by the 1970 court ordered desegregation plan and currently served by the Emergency School Aid Act Basic Program (ESAA). A school by school Needs Assessment Survey was completed by the 52 eligible ESAA schools in order to identify program priorities. Based upon the survey, remedial reading and remedial math services represented the primary activities to be implemented in all of the ESAA schools. Next highest priorities named were guidance, counseling and other student services, and innovative interracial activities. These human relation services were requested by 34 schools. In addition, all of the schools requested services to be focused at the primary grade level (K, 1, and 2).

Subjects for the study were chosen from first grade classrooms in five schools willing to participate. Students in the educatable mentally retarded and emotional disturbed special education classes were excluded to keep the sample within a normal range. However, children with exceptionalities who are functioning satisfactorily in regular classrooms were included.

With parental permission, the screening for subjects took place in four phases. In the initial phase, first grade teachers participating in the study completed adjustment ratings of all students in the classroom. Following this each child completed the peer rating instrument. Phase three involved the administration of the self-perception instrument.

The final screening phase consisted of combining the three scores to complete the selection process. Randomly selected individuals with two or more negative scores on the screening instruments were assigned to the low adjusted group. Those chidren with two or more positive scores were assigned to the high adjusted group. The middle group were randomly selected from those students scoring within the middle range of the screening instruments.

All subjects included in the study were assessed individually on three descriptive developmental instruments, action pattern behavior, interpersonal understanding, and perceptual-motor functioning.

The Sample

(1) Fifty-four subjects were divided into each of the following groups: high, middle and low adjusted functioners. Subjects were selected from Broward County public elementary schools by Eli Bower's screening method (Bower, 1969, 1974).

(2) Age. The age range of the sample was six years and two months to seven years and eight months. Developmental process variables are highly correlated with chronological age (Koppitz, 1975; Pontius and Ruttiger, 1976; Selman, Jaquette, and Lavin, 1977).

(3) Sex. According to previous research, sex-related development has been shown to be relatively parallel (Koppitz, 1975, p. 31; Luria, 1973, Appendix E; Selman, Jaquette and Lavin, 1977, p. 21).

(4) Race. Differences in interpersonal understanding by race with variations in social class controlled were not found to be significant (Selman, Jaquette, and Lavin, 1977, p. 23).

(5) The sample was urban rather than rural.

(6) Socio-economic status. Socioeconomic status was determined by school district. A balanced representation of schools from high to low socio-economic districts was selected for screening purposes (see Table 1).

(7) Intelligence. The sample consisted of children from regular classrooms. According to Broward County

guidelines, the established intelligence quotient for regular classroom placement is 85 and above.

(8) The level of social adjustment of the sample was either high, middle, or low as determined by nomination on three non-intellectual measures.

In summary, the sample was a purposive quota sample consisting of high, middle and low adjusted subjects possessing normal intelligence. The selected population (n=54) was representative of the total population pool (n=408).

Descriptive Developmental Instruments

Individuals selected on the basis of the teacher, peer, and self perception ratings were assessed on three developmental instruments for descriptive comparison purposes.

The Interpersonal Awareness Interview

Research about the ability to put the self in another's place and view the world from the other's position has its roots in the work of George Mead (1934) and further work has been done by Jean Piaget and others. Robert Selman and Diane Byrne (1974) have done research in this area, and it is their work upon which "First Things: Social Reasoning" is based. Each child viewed a First Things filmstrip in which a girl (boy) has been asked by a new friend to a special event. The invitation conflicts with previous plans with a best friend who already feels threatened by the new friendship. Following the story, a semi-structured interview

pertaining to the relevant interpersonal issues was given (Selman and Jaquette, 1977a, see Appendix H).

Although the questions have become semi-standardized, there existed a need to maintain a clinical flexibility in the assessment procedure, particularly with young children. Depending on the situation and the disposition of the child, questions were directed toward the hypothetical story, the child's own exerpiences, or the child's general understanding of interpersonal relations. The fundamental interviewing process explores the child's own naive theory of interpersonal relations and probes the reasons underlying his/her surface beliefs and opinions about interpersonal issues. Interviewing required both an appreciation of the child's ability to put together a coherent interpersonal philosophy and a sensitivity to specific stage-related responses which might require further followup probes (Selman and Jaquette, 1977b).

Each interpersonal awareness interview was tape-recorded for scoring purposes. Responses were divided into issue-concepts, defined as a standard question from the interview, its response, and follow-up probes and responses. To score these issue-concepts, an extensive scoring manual based on a separate sampling of past data was constructed (Selman and Jaquette, 1977a) from which individual responses (issue-concepts) are assigned a whole stage. Each issue score

represents an average of the one or more issue-concepts pertaining to it in accordance with algorithms spelled out in the manual. Thus, each issue is scored as either a pure stage (e.g. Stage 2) or a major (minor) (e.g. Stage 2 (1)) stage. The domain of focus in the current study is Friendship (see Appendix H for interview). A quantitative interpersonal awareness score was translated into a qualitative global interpersonal awareness score.

For the past four years, a major task has been the construction and validation of developmental description of interpersonal awareness in the form of social-cognitive stages. Using the clinical interview technique (Piaget, 1929) and hypothetical dilemmas (Kohlberg, 1969), data have been gathered on children, adolescents, and adults of both sexes and across a wide range of socioeconomic strata. This section selectively draws upon research findings to demonstrate validity and reliability studies which have guided the design of the present study.

The analysis of interpersonal awareness development comes from three sample populations. The normative sample consists of 225 interpersonal awareness interviews with subjects of both sexes and across the socioeconomic strata. The ages of these subjects ranged from 4:6 to 32 years. The longitudinal sample was composed of 48 children interviewed in 1974 and again in 1976 as a two-year follow-up. In 1974

their ages ranged from 6:0 to 12:1 and in 1976 from 7:11 to 14:3. The clinical-comparative sample was made up of 21 boys who in 1974 attended day schools for children with emotional and interpersonally based learning problems. These 21 children were matched with 21 of the normal longitudinal sample on the basis of age, sex, race, socioeconomic status, and IQ. Eleven of the 21 matched pairs came from middle class families and ten from working class backgrounds. Since 1974 and 1976 data exist for both the disturbed and matched member in each pair, the clinical-comparative sample is also longitudinal.

In an effort to standardize this assessment procedure, inter-rater, alternate form, and test-retest reliabilities have been calculated. The correlation between expert scorer and manual-trained scorer (trained through reading the manual only) was 0.94 (N=15). Inter-rater reliabilities were also obtained for the three individual domains. The Pearson correlations between expert and trained scorer were 0.87 (N=15) for the Friendship Interview.

To test the possibility that different hypothetical dilemmas might elicit different interpersonal understanding stage responses from the same child, nine children received both forms of the interview. A correlation of 0.88 indicated that levels of interpersonal awareness obtained in an interview setting can be stable across orienting hypothetical

dilemmas. A third indicator of the stability of interview derived interpersonal awareness scores in test-retest reliability. When assessment of this aspect of the stability of a developmental measure is needed (a measure which is expected to yield changing scores with increased age), retesting needs to be over two occasions separate enough in time so that the first administration would not be expected to influence the second, but near enough in time that little change due to natural age-related development would be expected to occur. Three studies whose primary focus has been the effects of intervention on assessed level of interpersonal awareness provide relevant data through an examination of the stability of interpersonal awareness level over time in the control group.

Cooney (1977) obtained test-retest reliability on a control group of second and third grade children of both sexes across two time periods, a) within a two month period and b) within a five month period. The Pearson correlation between blind scores (same scorer) across the two month testing was 0.61 (N=60), across five months, 0.63 (N=60). The percentage absolute agreement at a global stage was 0.70 and 0.73 respectively. Two other studies are reported with reliabilities of 0.92 in fifth and sixth graders across a 22 week period and 0.61 in the same age range across a six

month period in Selman, Jaquette, and Lavin (1977, p. 12). These studies support the short-term stability of the measure.

The longitudinal evidence suggests the clinic sample develops through the same sequence as the normative sample (N=225). This provides support for a perspective-taking developmental model, but is not particularly informative with respect to a better understanding of the function of interpersonal awareness for disturbed children. To approach this problem several analyses were undertaken. Of the 48 clinic sample interviews only 11% are above the age norms. Eighty per cent fall two standard deviations below the age appropriate interpersonal awareness norms.

Matched t-test comparisons were made of the 21 public school-clinic pairs on their level of interpersonal awareness at the initial interview and two years later. At both times the difference was significant on the basis of a one-tailed probability $p<0.005$). This pattern of a comparative clinic sample lag in interpersonal awareness was present in each of three interpersonal domains (Individual, Friendship, Group) at both times. Most of the clinic children appear to conceptualize peer interaction at a level charactieristic of normal children three or four years younger. What seems to be occuring are developmental lags rather than abnormalities (Selman, Jaquette, and Lavin 1977).

Despite the evidence of general lower level of verbally expressed awareness in the clinical sample, some practitioners and theorists (e.g. Redl and Wineman, 1956) have described the child with interpersonal difficulties as not so much lagging in social acuity as being more inconsistent in his/her utilization of interpersonal insights. The child may occasionally demonstrate high level abilities, but more often than a normal child will regress to use of less adequate interpersonal conceptions. This distinction calls to mind differences between performance and capability. The interpersonal awareness measure using the Friendship interview covers one's level of awareness across 6 interpersonal issues and it might be said to measure performance under interview conditions. A measure of capability can be also obtained by looking at the child's highest individual issue score, without averaging it with other lower scores. Selman, Jaquette, Lavin (1977) compared the resulting highest capability scores for both normal and disturbed child in each pair and found that in only six cases did the public school child demonstrate a higher interpersonal capability, as compared to the previously mentioned 17 pairs in which the public school child's overall interpersonal global score was higher than that of the disturbed child. In other words, in only 6 out of 17 matched cases in which there was a clinical lag in performance was the difference directly related to

differences in maximum capability. The other 11 cases of clinical lag appeared to be a function of how the disturbed child performed across a series of interpersonal questions; nevertheless, this difference in capability is still significant using a one-tailed match pair t-test ($p<0.02$).

In the current study global performance scores were used in the final data analysis.

Form Analysis of Action Behavior

In January 1978 the author was invited to attend the Harvard-Judge Baker Social Reasoning Project Workshop and was trained by Selman and Jaquette in the use of the interpersonal awareness interview. Dr. Anneliese Pontius of the Harvard Medical School assisted in extending the interview with appropriate probes to include her brief clinical screening test of action pattern behavior which gives an indication of functional maturational readiness of the Frontal Lobe System (Appendix H*) in terms of the developmental phase (Appendix F for sample ratings) of the individual.

Validity studies within this type of screening procedure are limited to correlational behavioral assessment and known neuroanatomical findings. Data show that for ages two to four there are coexisting parallel developmental aspects, i.e., neuroanatomical maturation, actual action behavior, and action patterns indicated in narratives (Pontius, 1974). These action patterns in narratives are characterized by

disjointedness of actions and an inability to switch principles of action appropriately. By age five most children (83.3% of 137) can switch actions which are ongoing in appropriate directions or patterns (Appendix F, Pontius and Ruttinger, 1976). This correlates positively with reported actual action behavior (Luria and Homskaya, 1964) and the known neuroanatomical developmental spurt of myelination of various structures of the Frontal Lobe System around age four (Yakovlev and Lecours, 1967).

Immaturities of the Frontal Lobe System (when myelination is delayed) are related to specific difficulties in the normal child who cannot reprogram an ongoing activity on verbal command earlier than age 24 to 26 months, and for somewhat more complicated reprogramming tasks, the child needs to be at least four years old. Pontius (1973a) suggests that the inability to switch principles of action is related to improper interaction between the system concerned with directly perceived stimuli and the system dealing with symbolic verbal elaboration.

In order to judge interrater reliability with stories which were used by Pontius to define developmental stages (Pontius, 1974), 354 stories collected by Pitcher and Prelinger (1963) were coded and blind analysis of form of action as reflected in each unit of the stories was completed. Only ratings of the highest developmental stage were included

in the analysis. Interrater reliabilities were found to be in the range of 0.80 to 0.90 (personal communication, Pontius, 1978).

The Bender Gestalt Test for Young Children

The Bender Gestalt Test consists of nine figures which are presented one at a time and which the subject is asked to copy on a blank piece of paper. When testing for problems in visual-motor perception the Bender is evaluated as a perceptual test and the records are scored according to the Developmental Scoring System.

The revised Developmental Scoring System (Koppitz, 1963) consists of thirty mutually exclusive scoring items which are scored as either present or absent. All scorings are added into a composite score.

Each scoring item was validated against first and second grade achievement as measured on the Metropolitan Achievement Test (Hildreth, G. and Griffith, N., 1949). Only those items were included which were able to differentiate statistically between above or below average students in either the first or second grade at the 5 per cent level or better ($p<0.05$) or which demonstrated a strong trend, i.e., significant at the 10 per cent level in both grades ($p<0.10$).

The subjects for the item analysis of the revised scoring system were 165 school children. Ninety-nine were

first graders, of these 59 were above average and 40 were below average in their achievement on the MET. The remaining 66 subjects were second graders; 45 of these were selected from six different schools in urban, suburban and rural settings and represented a socioeconomic cross section of these areas.

Two aspects of the Developmental Scoring System must be considered in order to demonstrate reliability: 1) Scorer reliability: Miller, Loewenfeld, Lindner, and Turner (1963) completed a reliability study of the revised system. They each scored independently, 30 Bender protocols from young clinic patients. Copies were also sent to Koppitz (1963) for scoring purposes. Pearson product moment correlations were computed between the test scores of all five raters. All correlations were statistically highly significant and ranged from 0.88 to 0.96. 2) Test score reliability: The split-half method and the alternate form method are not appropriate for testing the reliability of the Bender Scoring System. This leaves the test-retest method. This method of testing for reliability presents some problems in that immediate retesting with the Bender would show the result of practice, while a long time interval between test administrations would reflect the effect of maturation in visual-motor perception in a young child. It is hoped that both practice effect and the effect of maturation have been minimized by

selecting a time interval between the two test administrations that is neither very short nor very long. Each subject was retested four months after the initial administration of the test.

Two kindergarten classes and two first grade classes were subjects (N=112) for the reliability study. Kendall's Rank Correlation Coefficient was used to compute the reliability coefficient between the scores of the first and second administration of the tests. All correlations were found to be statistically significant at the $p<0.001$ level. Thus it appears that the Developmental Scoring System is reliable and can be used with considerable confidence (Koppitz, 1963).

The Comprehensive Test of Basic Skills (1974) Prereading and Mathematics scores were used in the final data analysis with the developmental description of each child. This standarized test is given in September in Broward schools and is aimed at measuring systematically those skills prerequisite to studying and learning in school. ESAA participation guidelines are reported in Appendix G. Since the Bender Test reflects the maturation level of visual-motor functioning in young children, it was of interest to correlate the outcome of both of these scores within elected groupings. A certain degree of maturity in visual-motor perception is necessary before a child can learn to read.

An essential part of the complex reading process is the perception of patterns, spatial relationships and the organization of configurations. Similar skills are involved in arithmetic (Koppitz, 1963). The Bender protocols was used as a description of underlying factors which may differentiate and contribute to the child's adjustment status. It is Koppitz's observation that emotional problems develop secondary to perceptual problems. Children with problems in visual-motor perception experience much frustration and frequent failure in school and at home. As a result negative attitudes and emotional maladjustment may result (Koppitz, 1963, p. 124).

Data Collection Summary and Scoring

Fifty-four subjects from a population of 408 were assessed on the descriptive developmental variables, action pattern behavior, interpersonal understanding, and perceptual-motor functioning.

The Friendship Interview (Appendix H) began with a presentation of an audio-visual filmstrip depicting a social dilemma (Selman, 1974) followed by the semi-structured interview which was tape recorded. Dr. Pontius' developmental probes were included at the end of the interview.

Assessment of interpersonal understanding level was completed by raters who are professionals (with at least an M.A. degree) working in the mental health field. The four

raters familiarized themselves with the nature of the interviews by rating tapes from interviews done while the author attended the Harvard-Judge Baker Social Reasoning Workshop in January, 1978. Raters did not begin work on the final sample tapes until interrater reliability had been established. This reliability was computed using the procedures for determining reliability of content analysis suggested by Fox (1969, p. 670):

$$\text{per cent agreement} = 100 \times \frac{\text{number of units of data coded identically}}{\text{total number of units of data coded}}$$

Fox believes that at least 85 to 90 per cent agreement should be reached for simple coding systems in order to be considered sufficiently reliable for use in research.

Briefly raters assigned scores to subjects' verbal responses to interview questions which had been rated during the January, 1978 workshop. Each issue-concept, defined as a standardized question and its follow-up probes and responses, was bracketed and assigned an issue number. An overview of aspects for each issue and stage is presented in Appendix I. Global stage scores were assigned on the basis of detailed description given in the Issue-by-Stage Manual prepared by Selman and Jaquette (1977a).

Interrater reliabilities on 120 (four interviews times thirty units per global response stage score) interview units assessed by each rater were as follows: Rater 1 and

2, 87.5; Rater 1 and 3, 85.1; Rater 1 and 4; 90.8; Rater 2 and 3, 93.7; Rater 2 and 4, 86.3; and Rater 3 and 4, 91.3. After interrater agreement had been established at the level suggested by Fox (1969), each rater was randomly assigned thirteen tapes for rating. They did not know to what level of adjustment the child had been assigned.

Narratives which were elicited by the Pontius' probes were rated by blind analysis by Dr. Pontius according to the examples and stage descriptions given in Appendix F.

The Bender protocols were scored by Dr. Angel Valez-Diaz, clinical psychologist of the South Dade Community Mental Health Center. Blind ratings were done using the Koppitz (1975) scoring system.

The Comprehensive Tests of Basic Skills scores were obtained from the ESAA teacher in each participating school.

Data Analysis

Cohen's (1968, 1977) explication of multiple regression techniques as general variance accounting procedures was used in the current study. As demonstrated by Cohen, multiple correlational analysis can be conceptualized as analogous to traditional analysis of variance procedures. In comparison to analysis of variance procedures, however, multiple regression techniques are more capable of accomodating the uncontrollable outcomes. Since the objective of the present descriptive study was the determination of the

degree to which variance in dependent measures (interpersonal understanding, patterns of action, perceptual-motor functioning, and skills prerequisite to studying and learning in school) could be accounted for as either a unique or joint function of level of adjustment, the use of multiple regression as described by Cohen was the method of choice. Accordingly, multiple correlational analyses for each of the criterion variables for each screening perception and level of adjustment was completed.

The hypotheses were tested as follows:

Hypothesis 1: Level of adjustment has no relationship to the developmental patterns of action behavior expressed in form analysis of narratives.

Story narratives were elicited from each child by the author. Dr. Anneliese Pontius of the Harvard Medical School rated the developmental pattern of action stage within the story by form analysis. An ordinal value was provided for each child on the developmental continuum and regression analysis was completed to test the significance of the relationship between screening variable scores and patterns of action. One way analysis of variance and t-tests for differences between means of action pattern behavior stage and level of adjustment were also completed.

Hypothesis 2: Level of adjustment has no relationship to developmental stage of interpersonal understanding.

The interpersonal understanding developmental level was based on an average of issue scores for all responses to items in the Friendship Interview. The tape recorded interviews were rated by mental health professionals who were trained by the author to assess issue concepts along a developmental continuum. Regression analysis, one way analysis of variance, and t-tests were completed as they were for Hypothesis 1 to test the significance of the relationship and differences between adjustment perceptions and interpersonal understanding.

Hypothesis 3: Level of adjustment has no relationship to perceptual-motor functioning.

Perceptual-motor functioning was assessed by the Bender Gestalt Test for Young Children. The Koppitz scoring method yielded an error score which was converted to a standard score for each child. Regression analysis, one way analysis of variance, and t-tests were completed as they were for Hypothesis 1 to test the significance of the relationship and differences between adjustment and perceptual-motor functioning.

Hypothesis 4: Level of adjustment has no relationship to skills prerequisite to studying and learning in school.

Skills prerequisite to studying and learning in school were based on prereading and math scores on the Comprehensive Test of Basic Skills (CTBS). This assessment was made within the first month of entry into school. Regression analysis was completed to test the significance of the relationship between screening variable scores and prereading and math scores. One way analysis of variance and t-tests for differences between means of prereading and math and level of adjustment were also completed.

Hypothesis 5: There are no significant relationships between level of adjustment and the descriptive variable scores when considered together.

A conventional multiple regression was run "backwards" using the criteria to "predict" the independent variable (adjustment) as represented by each of the subjective screening scores. The resulting multiple correlation provided an index of variance accounted for in the screening scores by the entire set of descriptive variables and the significance as each variable is added to the prediction equation. A multiple regression coefficient was also computed for each adjustment level so that order of entry (importance) of the

descriptive variables in the prediction equation for the total population could be compared to order of entry for each level of adjustment.

In order to test main effects and two-way interactions of the descriptive variables within the prediction equations, complex analyses of variance were completed with sex and age as covariates in each analyses.

Hypothesis 5a: Low adjusted children who are seen by peers as negative, but see themselves positively are no different than other low adjusted functioners on the developmental variables.

Hypothesis 5b: Low adjusted children who are seen by classmates as negative, and who see themselves negatively are no different than other low adjusted children on the developmental variables.

Hypothesis 5c: High adjusted functioners seen positively by peers and teachers and negatively by themselves are no different than other high adjusted functioners on the developmental variables.

These minor hypotheses were to be tested by *t*-tests for differences between means of each subgroup; however, they failed to satisfy statistical criteria and therefore were not testable.

The level of significance for tests of all hypotheses was set at $p<0.05$. The statistical analyses were computed using appropriate procedures from the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975). Computer programing aspects of the analyses were supervised by Dr. Charles Strattan of the Miami-Dade Community College Data Processing Department.

CHAPTER IV
RESULTS

A central purpose of this study was to compare developmental relationships and differences between children judged to have high and low adjustment.

In order to do this 54 first graders were screened into three groups on the basis of teacher, peer, and self perception ratings. The researcher administered and tape recorded the Friendship Interview given to each subject in order to assess the level of interpersonal understanding. Interviews were then rated by mental health professionals trained by the author to assess issue concepts along a developmental continuum. Story narratives were also elicited from each subject during the interview. Dr. Anneliese Pontius of the Harvard Medical School rated the developmental pattern of action stage within the story, by form analysis. Perceptual-motor functioning was assessed by the Bender Gestalt Test for Young Children. These protocols were scored by Dr. Angel Valez-Diaz, clinical psychologist of the South Dade Community Mental Health Center. The Comprehensive Test of Basic Skills (CTBS) prereading and math scores were obtained as an indication of skills prerequisite to studying and learning in school.

The results of the statistical analyses were completed using the appropriate procedures for regression, analysis of variance, and t-tests from the Statistical Package for the Social Sciences (SPSS). Dr. Charles Strattan of the Miami-Dade Community College Data Processing Department supervised the computer programming aspects of the analyses.

This chapter contains a section describing the selected subject population which is followed by the results of the parametric statistical analyses as related to the hypotheses.

Sixteen classrooms participated from five Broward County Schools. Four hundred eight children were given the screening instruments; 54 of these were selected for inclusion in the final phase of the study. The selected subjects were children falling on polar extremes on at least two of the screening instruments. Selected descriptive statistics of the subject population are reported in Table 1 (Description of the Selected Population: Schools and Socioeconomic Area) and Table 2 (Description of the Selected Population: Demographic Data). The number of subjects and teachers from each school, the general socioeconomic level and placement within adjustment groups are given in Table 1, while Table 2 breaks the treatment groups into sex, ethnic origin and age groups. Table 3 (Perception Ratings) reports measures of central tendency and variance on the screening instruments for all subjects, while Table 4 (Perception Ratings by Level

Table 1. Description of the Selected Population: Schools and Socioeconomic Area.

School	N Subjects	Relative % Frequency	N Teachers	Socioeconomic Area	Group N 1	2	3
Cypress	14	25.9	3	Low to Middle Income	4	4	6
Floranada	6	11.1	2	Middle Income	2	2	2
Norcrest	15	27.9	3	Middle Income	5	3	7
Pine Ridge	3	5.6	1	Middle Income	1	1	1
Nova Team B	10	18.5	3	High Income	4	4	2
Nova Team C	6	11.1	4	High Income	1	4	1
Total	54	100.0%	16	Total	17	18	19

Table 2. Description of the Selected Population: Demographic Data.

Group	Total N	Sex		Race			Mean Age (months)	s.d.
		Female	Male	Black	Hispanic	White		
Group 1 High Adjusted	17	14	3	1	1	15	80.8	3.6
Group 2 Middle Adjusted	18	8	10	3	0	15	80.3	3.2
Group 3 Low Adjusted	19	6	13	3	1	15	82.9	5.2
Total	54	28	26	7	2	45	81.8	5.2

Table 3. Perception Ratings.

	Perception Ratings*		
	Teacher	Peer	Self
Mean	30.3	48.3	29.7
Median	28.8	47.5	29.5
Mode	24.0	50.0	26.0
Range	10-53	0.0-100.0	10-56
s.d.	11.6	28.4	7.9

* Number of subjects = 54

Table 4. Perception Ratings by Level of Adjustment.

	Perception Ratings		
	Teacher	Peer	Self
Group 1 High Adjusted (n=17)			
Mean	17.6	13.5	30.4
Median	17.3	13.0	30.7
Mode	11.0	0.0	31.0
Range	10-26	0.0-32.0	10-52
s.d.	4.7	9.6	8.9
Group 2 Middle Adjusted (n=18)			
Mean	28.2	48.1	30.2
Median	28.5	47.2	30.0
Mode	29.0	50.0	34.0
Range	21-34	41-57	20-39
s.d.	3.7	4.9	5.3
Group 3 Low Adjusted (n=19)			
Mean	43.8	79.6	28.5
Median	43.0	80.0	28.3
Mode	42.0	80.0	16.0
Range	37-53	64.0-100.0	16-56
s.d.	4.2	9.5	9.2

of Adjustment) provides the same information for the high, middle, and low adjusted groups, respectively.

Of the 54 children included in the final analyses, 63 per cent were included on the basis of scores on teacher (T), peer (P), and self (S) perceptions (TPS), 33 per cent on the basis of teacher and peer perceptions (TP), and 3.7 per cent on the basis of teacher and self perception scores (TS).

To determine if the three adjustment groups were different sub-populations, t-tests for signficant differences between means of screening variables for the three levels of adjustment were computed. The results are reported in Table 5. The t-tests show significant differences between the high, middle, and low adjustment assignment for teacher and peer perception instruments. The self perception instrument does not differentiate the groups. The t-tests also indicate that the screening pattern significantly differentiates the high and middle groups from the low adjusted group; however, the high and middle adjusted levels have almost identical screening patterns (see Table 6) and are not significantly differentiated by screening pattern.

The descriptive quantitative assessment measures of central tendency and variance are reported in Table 7 for the selected population and Table 8 for each of the three groups. Higher scores on action pattern behavior and

Table 5. Significance of t-tests for Differences Between Means of Screening Variables for Each Pairing of the Three Levels of Adjustment.

Screening Variable	Level of Adjustment	Mean	Standard Error	t Value
Teacher	High	17.59	1.138	- 7.42*
	Middle	28.17	0.872	
	High	17.59	1.138	-17.74*
	Low	43.78	0.957	
	Middle	28.17	0.872	-12.03*
	Low	43.78	0.957	
Peer	High	13.47	2.336	-13.50*
	Middle	48.06	1.150	
	High	13.47	2.336	-20.76*
	Low	79.58	2.169	
	Middle	48.06	1.150	-12.64*
	Low	79.58	2.169	
Self	High	30.41	2.159	0.08**
	Middle	30.22	1.249	
	High	30.41	2.159	0.62**
	Low	28.53	2.102	
	Middle	30.22	1.249	0.68**
	Low	28.53	2.102	
Screening Pattern	High	1.17	0.095	- 0.33**
	Middle	1.22	0.101	
	High	1.17	0.095	- 3.11*
	Low	1.89	0.201	
	Middle	1.22	0.101	- 2.94*
	Low	1.89	0.201	

* $p<0.01$

** Not significant

Table 6. Screening Pattern Summary.

Level of Adjustment	Screening Pattern			Total N
	TPS	TP	TS	
High	14	3	0	17
Middle	14	4	0	18
Low	6	11	2	19
Total N	34	18	2	54

Table 7. Descriptive Score Summary (n=54)

	Action Behavior: Stage	Interpersonal Understanding: Stage Response		Bender		Prereading		Math	
		Average	High	Error Score	T Score	Raw Score	Stanine	Raw Score	Stanine
Mean	3.5	0.88	1.54	5.2	47.2	119.4	5.3	18.6	5.1
Median	3.5	0.83	1.66	4.8	46.0	127.0	5.2	19.0	5.5
Mode	4.0	0.72	2.00	3.0	41.0	119.0	4.0	19.0	5.0
Range	2-4	0.33-1.82	0-2	0-16	33-76	51-142	1-9	0-26	1-9
s.d.	1.0	0.37	0.61	3.2	8.7	22.3	2.2	6.7	2.3

Table 8. Descriptive Score Summary by Group.

	Action Behavior: Stage	Interpersonal Understanding: Stage Response Average	Interpersonal Understanding: Stage Response High	Bender Error Score	Bender T Score	Prereading Raw Score	Prereading Stanine	Math Raw Score	Math Stanine
Group 1	(n=13)	(n=17)		(n=17)		(n=17)		(n=17)	
Mean	4.0	1.18	1.94	3.8	44.1	130.5	6.2	20.9	6.1
Median	4.0	1.27	1.97	3.4	44.0	132.0	6.0	21.0	6.0
Mode	4.0	1.17	2.00	3.0	36.0	119.0	6.0	23.0	5.0
Range		0.62-1.82	1-2	1-8	36-62	117-141	4-9	13-26	3-9
s.d.	0.0	0.35	0.24	2.1	7.4	8.1	1.8	3.6	1.6
Group 2	(n=16)	(n=18)		(n-17)		(n=18)		(n=16)	
Mean	3.5	0.88	1.50	4.9	45.2	124.7	5.9	19.5	5.4
Median	3.8	0.83	1.60	3.5	42.5	131.5	6.5	21.0	6.0
Mode	4.0	0.72	2.00	3.0	52.0	108.0	5.0	22.0	6.0
Range	2-4	0.56-1.33	1-2	0-12	33-65	73-142	2-9	10-26	2-9
s.d.	0.8	0.21	0.67	3.3	8.0	18.4	2.0	2.2	2.4
Group 3	(n=17)	(n-19)		(n=18)		(n=19)		(n=18)	
Mean	3.0	0.59	1.20	6.7	51.9	104.3	3.9	15.6	4.1
Median	3.0	0.56	1.18	6.0	49.3	110.0	4.0	15.5	3.8
Mode	2,4	0.33	1.00	5.0	49.0	115.0	4.0	14.0	4.0
Range	2-4	0.33-1.00	0-2	2-16	42-76	51-141	1-9	3-26	1-9
s.d.	0.9	0.28	0.63	3.5	8.7	26.6	2.0	6.5	2.3

interpersonal understanding assessments are indicative of higher level development. Lower error scores on the Bender are related to higher perceptual-motor functioning. Prereading and math scores increase with higher capability.

Results of the Statistical Analyses

Regression analyses were completed for all hypotheses to test the relationships among level of adjustment (based on the subjective screening variables) and the descriptive quantitative assessment measures. One way analyses of variance were completed to test Hypotheses 1 through 4 and *t*-tests were computed to test the significance of the difference between paired groups. Hypothesis 5 results are reported in a similar manner; however, complex analysis of variance is used in order to consider multiple descriptive variables and covariates simultaneously.

Hypothesis 1: Level of adjustment has no relationship to the developmental patterns of action behavior expressed in form analysis of narratives.

The process level of assessed patterns of action behavior was done by form analysis of narratives. An ordinal value was provided for each child on the developmental continuum. Regression analysis was completed to test the significance of the relationship between screening variable scores and patterns of action. Table 9 presents the results

Table 9. Multiple Correlations, Proportion of Variance and Increments Associated with Screening Perceptions and Action Pattern Behavior.

Independent Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Peer Perception	0.51	0.2556	0.2556	-0.51	-0.32	1/44	15.10*
Teacher Perception	0.52	0.2664	0.0109	-0.49	-0.22	2/43	7.81*
Self Perception	0.53	0.2766	0.0102	0.09	0.10	3/42	5.35*
(Constant=4.25)							

* $p<0.01$

of the analyses. The rows indicate the main effects associated with each of the major independent variables. In the columns are reported the predictive power (R and R^2) of the most significant independent variable alone and with the addition of each succeeding variable, the predictive increment of each variable over the other (R sq change), the zero-order correlation between the dependent variable and each independent variable (Simple R), the standardized partial regression coefficient (Beta), and the significance of the main effects and increments (p).

The multiple correlation of the screening perceptions with action pattern behavior was 0.53 ($p<0.01$). Peer perception has a simple R of -0.51 while teacher perception simple R is -0.49. Because the zero-order correlations are negative, the indication is that as the move is made from high to low adjustment, the developmental stage score decreases. It can be seen that only 2 per cent (0.2766-0.2556=0.0210) of the proportion of variation in action pattern behavior is explained by the addition of teacher and self perception to peer perception. Since approximately 25 per cent of the variability between action pattern behavior and the screening variables is accounted for by either teacher or peer perception (Simple R=-0.51, -0.49 respectively), they could be used interchangeably with little difference in predictability. Self perception accounts for less than one per cent of the

variation. It would appear that peer and teacher perception instruments may measure the same factors.

Table 10 is a developmental stage by adjustment level summary. Only those stories which clearly reflected the ability or inability mentioned in the stage level were scored. Stories that were too short or appeared to be recounts from memory of actual activities of other persons are not included. All scoreable stories elicited from the high adjusted group were in Stage 4 (ability to switch the principle of action appropriately) as were the major portion of stories elicited from the middle adjusted group. The low adjusted group had a bimodal distribution with an equal number of stories in Stage 2 (inability to switch the principle of action appropriately) and Stage 4 (see Chapter V for descriptive examples).

One way analysis of variance was completed between action pattern behavior stage and level of adjustment. Table 11 present the results of the analysis. The one way analysis was significant ($p<0.05$). Results of the t-tests for differences between means of action pattern behavior stage and each pairing of the three levels of adjustment are presented in Table 12. The significance of the t-tests indicate that the high adjusted group is significantly different from the middle ($p<0.05$) and low ($p<0.05$) adjusted group; however, the middle group is not significantly different from the low ($p=0.11$) group.

Table 10. Developmental Pattern of Action Stage Specifically Associated with Level of Adjustment.

	Stage									
	I		II		III		IV			
	Disjointedness of Activities		Inability to switch the principle of action appropriately		Planning seen as helpful, lack of it as harmful		Ability to switch the principle of action appropriately		Not ratable stories	
Level	N	%	N	%	N	%	N	%	N	%
High	0	0.0	0	0.0	0	0.0	13	76.5	4	23.5
Middle	0	0.0	3	16.7	2	11.1	11	61.1	2	11.2
Low	0	0.0	7	36.8	3	15.8	7	36.8	2	10.6

Table 11. One Way Analysis of Variance Between Means of Action Pattern Behavior Stage and Level of Adjustment.

Source	d.f.	Sum of Squares	Mean Squares	F Ratio
Between Groups	2	7.4132	3.7066	6.641*
Within Groups	43	24.0000	0.5581	
Total	45	31.4131		

*$p<0.05$

Table 12. t-tests for Differences Between Means of Action Pattern Behavior Stage and Level of Adjustment.

Level of Adjustment	Mean	Standard Error	df	t Value
High	4.0	0.000	27	2.20*
Middle	3.5	0.204		
High	4.0	0.000	28	3.84*
Low	3.0	0.227		
Middle	3.5	0.204	31	1.63**
Low	3.0	0.227		

* $p<0.05$
** Not significant

The results of these analyses for Hypothesis 1 indicate that there is a relationship between levels of adjustment and peer or teacher perception. Either peer or teacher perception can be used with essentially the same predictive power regarding developmental pattern of action stage. The negative correlation indicates that as the move is made from high to low peer status, the developmental level decreases. Additional tests for differences between the action behavior means for each group show that the high group has stage scores significantly above the middle and low group.

Hypothesis 2: Level of adjustment has no relationship to developmental stage of interpersonal understanding.

The interpersonal understanding (IPU) developmental stage is an average of issue scores for all responses to items in the Friendship Interview. Regression analysis was completed as it was for Hypothesis 1 to test the significance of the relationship between screening variable scores and interpersonal understanding. Table 13 presents the results of the analyses.

The multiple correlation of the screening perceptions with interpersonal understanding was 0.60 ($p<0.01$) with peer and teacher perceptions having identical simple R correlations of -0.57. Self perception simple R is -0.17. The

Table 13. Multiple Correlations, Proportion of Variance and Increments Associated with Screening Perceptions and Interpersonal Understanding.

Independent Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Peer Perception	0.57	0.3290	0.3290	-0.57	-0.35	1/52	25.50*
Self Perception	0.59	0.3488	0.0197	-0.17	-0.13	2/51	13.66*
Teacher Perception	0.60	0.3615	0.0128	-0.57	-0.25	3/50	9.44*
(Constant=1.44)							

* $p<0.01$

negative zero-order correlations indicate that as the move is made from high to low adjustment, the developmental stage score decreases. Approximately 33 per cent of variability in interpersonal understanding is accounted for by peer perception. The addition of self and teacher perceptions to the regression equation augments this figure by 3 per cent (0.3615-0.3290=0.0315). The contribution of these perceptions is significant ($p<0.01$) although they add very little new information to the variability in interpersonal understanding accounted for by peer perception. Peer and teacher perceptions may be measuring the same thing and self perception something different.

Table 14 is a developmental stage by adjustment level summary. All subjects completing the interview were within the first three interpersonal understanding stages (see Chapter V, for descriptive examples). Table 15 delineates the major (minor) stage scores within each pure stage by adjustment level. The major (minor) stage breakdown lends itself to a qualitative description of the average quantitative interpersonal understanding score obtained from responses to issue concepts in the Friendship Interview and reflects stage variation. It can be seen from Table 15 that six subjects in the high adjusted group had mixed capability scores (i.e., 1(2)). This is interpreted to mean that they were reasoning in Stage 1 (differentiated perspective on the

Table 14. Developmental Stage of Interpersonal Understanding Specifically Associated with Level of Adjustment.

	Stage 0 Egocentric: Undifferentiated Perspective		Stage 1 Subjective: Differentiated Perspective		Stage 2 Self Reflection: Reciprocal Perspective		Stage 3 Third Person: Mutual Perspective		Stage 4 Societal: In-Depth Perspective	
Level	n	%	n	%	n	%	n	%	n	%
High	0	0.0	14	82.4	3	17.7	0	0.0	0	0.0
Middle*	0	0.0	17	94.5	0	0.0	0	0.0	0	0.0
Low*	8	42.1	10	52.6	0	0.0	0	0.0	0	0.0

* Two subjects were unable to complete the Friendship Interview. Both children, one from the middle group and the other from the low group were unable to verbalize, however they did draw a picture of themselves with friends.

Table 15. Major (Minor) Stage of Interpersonal Understanding Within Level of Adjustment.

	Stage 0		Stage 1			Stage 2		
	0	0(1)	1(0)	1	1(2)	2(1)	2	2(3)
	Number of Subjects (N)							
Level								
High	0	0	2	6	6	2	1	0
Middle	0	0	6	10	1	0	0	0
Low	1	7	3	7	0	0	0	0

self-other continuum) throughout at least 51 per cent of the interview and were reasoning in Stage 2 (reciprocal perspective) 25 to 49 per cent of the interview. No individuals in the low group had this mixed capability and only one appears in the middle adjusted group. All children reasoning in Stage 2 are in the high adjusted group (n=3). In contrast, children reasoning in Stage 0 (undifferentiated perspective) are in the low adjusted group (n=8) and none reach reasoning capabilities above pure Stage 1 (n=10).

One way analysis of variance was completed between means of interpersonal understanding stage scores and level of adjustment. Table 16 and 17 present the results of one way analysis and the t-tests for differences between means of interpersonal understanding stage scores and each pairing of the three levels of adjustment. The one way analysis was significant ($p<0.01$). In order to validate the differences between all possible pairs of means, t-tests for independent samples were completed. The significance of the t-tests indicate that all groups are significantly different from one another ($p<0.01$) with the order of differences in the expected direction (high adjusted children reasoning at higher stage levels than low adjusted children).

The results of these analyses for Hypothesis 2 indicate that there is a relationship between levels of adjustment and peer perception as a predictor of outcome on developmental

Table 16. One Way Analysis of Variance Between Means of Interpersonal Understanding Stage and Level of Adjustment.

Source	d.f.	Sum of Squares	Mean Squares	F Ratio
Between Groups	2	3.4968	1.7484	17.684*
Within Groups	51	5.0422	0.0989	
Total	53	8.5390		

*$p<0.01$

Table 17. t-tests for Differences Between Means of Interpersonal Understanding Stage and Level of Adjustment.

Level of Adjustment	Mean	Standard Error	df	t Value
High	1.18	0.084	32	3.29*
Middle	0.88	0.068		
High	1.18	0.084	32	5.73*
Low	0.59	0.070		
Middle	0.88	0.068	33	2.74*
Low	0.59	0.070		

* $p<.01$

stage of interpersonal understanding. The differences between interpersonal understanding means for each group are significant and indicate that as the move is made from high to low peer status, the developmental level decreases.

Hypothesis 3: Level of adjustment has no relationship to perceptual-motor functioning.

Perceptual-motor functioning was assessed by the Bender Gestalt Test for Young Children. The Koppitz scoring method yielded an error score for each child. Error scores were converted to standard scores by the following method:

$$\text{Standard score (z)} = \frac{\text{raw error score - mean for age}}{\text{standard deviation for age}}$$

The means and standard deviation for ages were taken from Koppitz (1975, p. 185). The z-scores were then converted to the T-scores according to the following formula:

$$T = 50 + 10(z)$$

T-scores have a mean of 50 and a standard deviation of ten. The use of such a conversion does not affect the relative standing of the individuals or change the shape of the distribution. It takes into account the age and raw error score for each child in relation to established age norms.

Regression analysis was completed as it was for Hypothesis 1 to test the significance of the relationship between screening variables and perceptual-motor functioning. Table 18 is a presentation of the results of the analyses.

Table 18. Multiple Correlations, Proportion of Variance and Increments Associated with Screening Perceptions and Perceptual-Motor Functioning.

Independent Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Teacher Perception	0.36	0.1308	0.1308	0.36	0.29	1/52	7.83*
Self Perception	0.40	0.1584	0.0275	-0.13	-0.16	2/51	4.80*
Peer Perception	0.40	0.1603	0.0020	0.35	0.10	3/50	3.18*
(Constant=41.89)							

* $p<0.05$

Table 19. Developmental Age of Perceptual-Motor Functioning Specifically Associated with Levels of Adjustment.

	Developmental Age (years)								
	11	10	9	8	7	6	5	4	
Raw Error Score	0	1	2	3-4	5-6	7-8	9-13	14-20	
	Number of Subjects (N)								
Level									Total N
High	0	3	2	6	4	2	0	0	17
Middle	1	0	3	6	2	2	4	0	18
Low	0	0	1	3	7	4	3	1	19

The multiple correlation of the screening perceptions with perceptual-motor functioning was 0.40 ($p<0.05$) with teacher and peer perception having almost identical simple R correlations (0.36 and 0.35, respectively). The positive zero-order correlations indicate that error scores increase as the move is made from high to low adjustment. Teacher perception is the best predictor of perceptual-motor functioning although it accounts for only 13 per cent of the variability in the developmental variable. The addition of self perception increases this figure by 3 per cent (0.1580-0.1308=0.0275). Peer perception additive influence on variability in perceptual-motor functioning is negligible but may measure the same factor as teacher perception.

Table 19 is a summary of the developmental age of perceptual-motor functioning associated with each level of adjustment. Over half (n=11) of the high adjusted group is functioning at a developmental age of 8 years or higher as compared to less than a quarter (n=4) of the low adjusted group functioning at a similar developmental age. The middle adjusted group appear to have children who are functioning higher and to a lesser degree lower than the average age level for the group.

One way analysis of variance was completed between means of perceptual-motor functioning and level of adjustment. Table 20 presents the results of the one way analysis and

Table 20. One Way Analysis of Variance Between Means of Perceptual-Motor Functioning and Level of Adjustment.

Source	d.f.	Sum of Squares	Mean Squares	F Ratio
Between Groups	2	80.5904	40.2952	4.222*
Within Groups	51	486.7427	9.5440	
Total	53	567.3330		

*p<0.05

Table 21 the results of the t-tests for differences between means of perceptual-motor functioning and each pairing of the three levels of adjustment. The one way analysis was significant ($p<0.05$). In order to assess significant differences between all pairs of means, t-tests for independent samples were completed. The significance of the t-tests indicate that the low adjusted group mean for perceptual-motor functioning is significantly higher than the means for the high ($p<0.05$) and middle ($p<0.05$) adjusted group. The middle adjusted group, although higher is not significantly different from the high ($p=0.66$) adjusted group.

The results of these analyses for Hypothesis 3 indicate that there is a relationship between level of adjustment and teacher perception as a predictor of outcome on perceptual-motor functioning. Peer perception has a negligible effect on variability in the developmental measure. Tests for differences between perceptual-motor means for each level of adjustment show that the low adjusted group have significantly higher means than the high and middle adjusted group. This indicates that the low group is functioning at a lower developmental age.

Hypothesis 4: Level of adjustment has no relationship to skills prerequisite to studying and learning in school.

Table 21. t-tests for Differences Between T-score Means of Perceptual-Motor Functioning and Level of Adjustment.

Level of Adjustment	Mean	Standard Error	df	t Value
High	44.05	1.79	33	-0.45**
Middle	45.22	1.88		
High	44.05	1.79	34	-2.91*
Low	51.95	2.00		
Middle	45.22	1.88	35	-2.44*
Low	51.95	2.00		

* $p<0.05$

** Not significant

Skills prerequisite to studying and learning in school were based on prereading and math scores on the Comprehensive Test of Basic Skills (CTBS). Regression analysis was completed as it was for Hypothesis 1 to test the significance of the relationship between screening variables and prereading and math raw scores. The results of these analyses are presented in Tables 22 and 23, respectively.

The multiple correlation of the screening perceptions with prereading and scores was 0.51 ($p<0.01$). Twenty-four per cent of the variability in prereading scores is accounted for by teacher perception. The addition of self and peer perception increase this figure by less than 1 per cent (0.1380-0.1307=0.0073). Peer perception does not add a significant increment to the regression equation.

Teacher perception is the best predictor of skills prerequisite to studying and learning in school. In addition, the negative prereading and math zero-order correlations indicate that as the move is made from high to low adjustment, the scores decrease.

One way analysis of variance was completed between means of prereading and math scores. Table 24 and 25 are the results of the one way analyses. The one way analyses for prereading ($p<0.01$) and math ($p<0.05$) scores were significant. In order to assess significant differences for all pairs of means, *t*-tests for independent samples were completed for each set of scores.

Table 22. Multiple Correlations, Proportion of Variance and Increments Associated with Screening Perceptions and Skills Prerequisite to Studying and Learning in School: Prereading Scores.

Independent Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Teacher Perception	0.49	0.2446	0.2446	-0.49	-0.54	1/52	16.83*
Self Perception	0.51	0.2594	0.0147	-0.17	-0.11	2/51	8.93*
Peer Perception	0.51	0.2602	0.0009	-0.42	0.06	3/50	5.86*
(Constant=153.42)							

* $p<0.01$

Table 23. Multiple Correlations, Proportion of Variance and Increments Associated with Screening Perceptions and Skills Prerequisite to Studying and Learning in School: Math Scores.

Independent Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Teacher Perception	0.36	0.1307	0.1307	-0.36	-0.31	1/52	7.81*
Self Perception	0.37	0.1370	0.0063	0.05	0.08	2/51	4.05*
Peer Perception	0.37	0.1380	0.0010	-0.34	0.07	3/50	2.67**
(Constant=22.74)							

* $p<0.05$

** Not significant

Table 24. One Way Analysis of Variance Between Means of Prereading Scores and Level of Adjustment.

Source	d.f.	Sum of Squares	Mean Squares	F Ratio
Between Groups	2	55.2856	27.6428	7.180*
Within Groups	51	196.3621	3.8502	
Total	53	251.6477		

*p<0.01

Table 25. One Way Analysis of Variance between Means of Math Scores and Level of Adjustment.

Source	d.f.	Sum of Squares	Mean Squares	F Ratio
Between Groups	2	44.2362	22.1181	4.538*
Within Groups	51	248.5783	4.8741	
Total	53	292.8145		

*p<0.05

Tables 26 and 27 present the results of t-tests for differences between means of each pairing of the three levels of adjustment for prereading and math scores, respectively. Both prereading and math scores significantly differentiated the high ($p<0.05$, 0.05, respectively) and middle ($p<0.05$, 0.05, respectively) adjusted group from the low adjusted group. The middle adjusted group was not significantly different ($p<0.24$, 0.09, respectively) from the high adjusted group on either score.

The results of these analyses for Hypothesis 4 indicate that there is a relationship between level of adjustment and teacher perception as a predictor of outcome on skills prerequisite to studying and learning in school. Additionally, tests for differences between means for these skills for each level of adjustment show that the middle and high adjusted group have significantly higher means than the low adjusted group. This indicates that low adjusted children possess the skills prerequisite to studying and learning to a lesser degree when they enter first grade.

Hypothesis 5: There are no significant relationships between level of adjustment and the descriptive variable scores when considered together.

In order to test the major hypothesis the following regression analyses were computed to create a linear

Table 26. t-tests for Differences Between Means of CTBS Prereading Scores and Level of Adjustment.

Level of Adjustment	Mean	Standard Error	df	t Value
High	130.5	1.97	33	1.21**
Middle	124.7	4.34		
High	130.5	1.97	34	3.91*
Low	104.3	6.09		
Middle	124.7	4.34	35	2.69*
Low	104.3	6.09		

* $p<0.05$

** Not significant

Table 27. t-tests for Differences Between Means of CTBS Math Scores and Level of Adjustment.

Level of Adjustment	Mean	Standard Error	df	t Value
High	20.9	0.87	31	1.74**
Middle	19.5	1.84		
High	20.9	0.87	33	3.43*
Low	15.6	1.52		
Middle	19.5	1.84	32	2.07*
Low	15.6	1.52		

* $p<0.05$

** Not significant

prediction equation with the descriptive outcome variables and to evaluate its prediction accuracy (p value) according to each of the screening variables. Each of the subjective screening variables was used as a single predictor and the descriptive variables as the multiple criteria. A conventional multiple regression was run "backwards" using the criteria to "predict" the independent variable (adjustment) as represented by each of the subjective screening scores. The resulting multiple correlation provides an index of variance accounted for in the dependent screening scores variable by the entire set of independent variables; the associated F-test for the multiple correlation indicates the significance in this limited multivariate sense. Tables 28 through 30 report the results of these analyses. The significance of the equation as each variable is added is reported in the last column (p).

As can be seen, each descriptive variable is significantly related to teacher and peer rating when added to the equation. The multiple correlation of teacher rating and peer rating with the combined descriptive outcome scores are 0.78 ($p<0.01$) and 0.76 ($p<0.01$) respectively. Also the order of importance of the descriptive variable within each equation is the same except for the reversal of the prereading and math variables. The self perception regression did not show significance. The results of these analyses suggest

Table 28. Multiple Correlations, Proportion of Variance and Increments Associated with Teacher Perception and Descriptive Variables.

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Interpersonal Understanding	0.60	0.3623	0.3623	-0.60	-0.38	1/41	23.29*
Action Behavior	0.70	0.4934	0.1312	-0.57	-0.44	2/40	19.48*
Prereading	0.74	0.5542	0.0608	-0.50	-0.49	3/39	16.16*
Perpecptual-Motor	0.78	0.6110	0.0568	0.37	-0.40	4/38	14.92*
Math	0.78	0.6136	0.0025	-0.49	-0.08	5/37	11.75*
(Constant=98.35)							

* $p<0.01$

Table 29. Multiple Correlations, Proportion of Variance and Increments Associated with Peer Perception and Descriptive Variables.

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Interpersonal Understanding	0.63	0.3941	0.3941	-0.63	-0.42	1/41	26.67*
Action Behavior	0.72	0.5250	0.1309	-0.58	-0.38	2/40	22.11*
Math	0.75	0.5599	0.0348	-0.49	-0.18	3/39	16.54*
Perceptual-Motor	0.75	0.5644	0.0045	0.41	-0.17	4/38	12.31*
Prereading	0.76	0.5712	0.0068	-0.43	-0.15	5/37	9.87*
(Constant=166.00)							

* $p<0.01$

Table 30. Multiple Correlations, Proportion of Variance and Increments Associated with Self Perception and Descriptive Variables.

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Prereading	0.12	0.0139	0.0139	-0.12	-0.37	1/41	0.58**
Perceptual-Motor	0.19	0.0354	0.0215	-0.01	-0.20	2/40	0.73**
Math	0.23	0.0509	0.0155	0.01	0.17	3/39	0.70**
Action Behavior	0.23	0.0525	0.0017	0.09	0.06	4/38	0.53**
Interpersonal Understanding	0.24	0.0553	0.0027	-0.04	-0.06	5/37	0.43**
(Constant=2.29)							

** Not significant

a significant relationship between the screening variable status on teacher and peer perceptions but not self perception within level of adjustment.

A multiple regression was also computed for each adjustment level in the manner described for the total sample population so that order of entry of the descriptive variables in the prediction equation for the total population could be compared to order of entry for each level of adjustment. Significance of these multiple correlations are reported in Appendix J. The variable in each equation that explains the greatest cummulative amount of variance in the screening perception will enter the equation first; the variable that explains the greatest amount of variance in conjunction with the first entry will enter second, and so on. In other words, the variable explaining the greatest amount of variance unexplained by variables already in the equation enters the equation at each step. Variables not meeting the statistical criteria will not be entered into the equation. Also reported in the prediction equation are the beta weights. These standardized partial regression coefficients provide a way to compare the relative effect on the screening variable of each descriptive variable as it enters the equation. Table 31 and 32 present the regression equations for prediction of teacher and peer perceptions, respectively.

Table 31. Regression Equations for Prediction of Teacher Perception.

High Adjusted (n=13)	= -1.18(BDR)-0.91(READ)-0.42(IPU)-0.07(MATH)
Middle Adjusted (n=14)	= 0.41(IPU)-0.67(BDR)-0.39(ACT)-0.35(READ)-0.05(MATH)
Low Adjusted (n=16)	= -0.49(ACT)-0.52(READ)+0.46(IPU)+0.43(MATH)
Total Sample (n=46)	= -0.38(IPU)-0.44(ACT)-0.49(READ)-0.40(BDR)-0.08(MATH)

Table 32. Regression Equations for Prediction of Peer Perception.

High Adjusted (n=13)	= 1.18(BDR)+0.74(READ)+0.54(MATH)+0.26(IPU)
Middle Adjusted (n=14)	= -0.35(ACT)-0.30(IPU)-0.28(READ)-0.27(BDR)
Low Adjusted (n=16)	= -0.42(ACT)-0.28(BDR)+0.18(IPU)+0.12(MATH)-0.13(READ)
Total Sample (n=46)	= -0.42(IPU)-0.38(ACT)-0.18(MATH)-0.17(BDR)-0.15(READ)

Action pattern behavior (ACT) beta weight is highest in the low adjusted group and is the first in order of importance as a prediction of low adjustment by teacher perception. This is also true for prediction of low adjustment by peer perception. The perceptual-motor (BDR) beta weight is the highest in the high adjusted group and is the first in order of importance in the prediction of high adjustment by either perception. Reading skills (READ) prerequisite to studying and learning in school are weighted heavily in the high and low adjusted groups when predicted by teacher perception (0.91, 0.52, respectively) and follow a second order in importance to perceptual-motor and action pattern behavior, respectively. This is also true for high adjustment predicted by peer perception. Math (MATH) is generally of fourth or fifth in order of importance in adjustment status predicted by teacher perception. Interpersonal understanding (IPU), although of first order importance to the overall prediction of adjustment by both perceptions, appears first only once.

In order to test main effects and two-way interactions of the descriptive variables within the prediction equations, SPSS Analyses of Variances were completed. Table 33 through 42 represent the results of these analyses. Age and sex were covariates in each analyses.

Table 33. Analysis of Variance: Action Pattern Behavior and Interpersonal Understanding.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.135	2	3.068	9.039*
Sex	4.535	1	4.535	13.363*
Age	0.570	1	0.570	1.680**
Main Effects	11.958	8	1.495	4.404*
Action Pattern Behavior	1.902	2	0.951	2.803**
Interpersonal Understanding	7.647	6	1.275	3.755*
2-Way Interaction	0.699	3	0.233	0.686**
Explained	18.792	13	1.446	4.260*
Residual	10.860	32	0.339	
Total	29.652	45	0.659	

[+]54 Cases were processed.

[+] 8 Cases (14.8 Per cent) were missing.

* $p<0.01$

** Not significant

Table 34. Analysis of Variance: Action Pattern Behavior and Perceptual-Motor Functioning.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.135	2	3.068	7.050*
Sex	4.535	1	4.535	10.422*
Age	0.570	1	0.570	1.310**
Main Effects	9.055	9	1.006	2.312*
Action Pattern Behavior	2.239	2	1.120	2.573**
Perceptual-Motor Functioning	4.744	7	0.678	1.558**
2-Way Interaction	2.278	6	0.380	0.872**
Explained	17.468	17	1.028	2.361*
Residual	12.184	28	0.435	
Total	29.652	45	0.659	

[+]54 Cases were processed.

[+] 8 Cases (14.8 Per cent) were missing.

* $p<0.05$

** Not significant

Table 35. Analysis of Variance: Action Pattern Behavior and Reading Skills Prerequisite to Studying and Learning in School.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.135	2	3.068	10.702*
Sex	4.535	1	4.535	15.821*
Age	0.570	1	0.570	1.989**
Main Effects	13.168	10	1.317	4.594*
Action Pattern Behavior	1.397	2	0.699	2.437**
Prereading Skills	8.857	8	1.107	3.862*
2-Way Interaction	2.610	6	0.435	1.517**
Explained	21.913	18	1.217	4.247
Residual	7.739	27	0.287	
Total	29.652	45	0.659	

[+] 54 Cases were processed.

[+] 8 Cases (14.8 Per cent) were missing.

* $p<0.01$

** Not significant

Table 36. Analysis of Variance: Action Pattern Behavior and Math Skills Prerequisite to Studying and Learning in School.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.135	2	3.068	10.316*
Sex	4.535	1	4.535	15.250*
Age	0.570	1	0.570	1.917**
Main Effects	12.941	11	1.176	3.950*
Action Pattern Behavior	0.732	2	0.366	1.230**
Math Skills	8.631	9	0.959	3.225*
2-Way Interaction	2.844	6	0.474	1.594**
Explained	21.920	19	1.154	3.880*
Residual	7.732	26	0.297	
Total	29.652	45	0.659	

[+] 54 Cases were processed.

[+] 8 Cases (14.8 Per cent) were missing.

* $p<0.01$

** Not significant

Table 37. Analysis of Variance: Interpersonal Understanding and Perceptual-Motor Functioning.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.190	2	3.095	6.912*
Sex	5.918	1	5.918	13.217*
Age	0.132	1	0.132	0.294**
Main Effects	14.731	13	1.133	2.531*
Interpersonal Understanding	9.442	6	1.574	3.515*
Perceptual-Motor Functioning	2.628	7	0.375	0.838**
2-Way Interaction	3.811	13	0.293	0.655**
Explained	24.732	28	0.883	1.973*
Residual	11.194	25	0.448	
Total	35.926	53	0.678	

[+]54 Cases were processed.

[+] 0 Cases (0.0 per cent) were missing.

* $p<0.05$

** Not significant

Table 38. Analysis of Variance: Interpersonal Understanding and Reading Skills Prerequisite to Studying and Learning in School.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.190	2	3.095	7.330*
Sex	5.918	1	5.918	14.017*
Age	0.132	1	0.132	0.312**
Main Effects	15.957	14	1.140	2.700*
Interpersonal Understanding	3.962	6	0.660	1.564**
Reading Skills	3.854	8	0.482	1.141**
2-Way Interaction	4.069	14	0.291	0.688**
Explained	26.215	30	0.874	2.070*
Residual	9.710	23	0.422	
Total	35.926	53	0.678	

[+]54 Cases were processed.

[+] 0 Cases (0.0 per cent) were missing.

* $p<0.05$

** Not significant

Table 39. Analysis of Variance: Interpersonal Understanding and Math Skills Prerequisite to Studying and Learning in School.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.190	2	3.095	6.749*
Sex	5.918	1	5.918	12.905*
Age	0.132	1	0.132	0.288**
Main Effects	15.839	15	1.056	2.303*
Interpersonal Understanding	4.768	6	0.795	1.733**
Math Skills	3.736	9	0.415	0.905**
2-Way Interaction	4.267	15	0.284	0.620**
Explained	26.295	32	0.822	1.792**
Residual	9.630	21	0.459	
Total	35.926	53	0.678	

[+] 54 Cases were processed.

[+] 0 Cases (0.0 per cent) were missing.

* $p<0.05$

** Not significant

Table 40. Analysis of Variance: Reading Skills Prerequisite to Studying and Learning in School and Perceptual-Motor Functioning.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.190	2	3.095	5.594*
Sex	5.918	1	5.918	10.696*
Age	0.132	1	0.132	0.238**
Main Effects	13.721	15	0.915	1.653**
Reading Skills	8.432	8	1.054	1.905**
Perceptual-Motor Functioning	1.726	7	0.247	0.446**
2-Way Interaction	4.397	15	0.293	0.530**
Explained	24.307	32	0.760	1.373**
Residual	11.619	21	0.553	
Total	35.926	53	0.678	

[+]54 Cases were processed.

[+] 0 Cases (0.0 per cent) were missing.

* $p<0.05$

** Not significant

Table 41. Analysis of Variance: Math Reading Skills Prerequisite to Studying and Learning in School and Perceptual-Motor Functioning.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.190	2	3.095	6.300*
Sex	5.918	1	5.918	12.047*
Age	0.132	1	0.132	0.268**
Main Effects	13.947	16	0.872	1.774**
Math Skills	8.658	9	0.962	1.958**
Perceptual-Motor Functioning	2.875	7	0.411	0.836**
2-Way Interaction	7.438	18	0.413	0.841**
Explained	27.574	36	0.766	1.559**
Residual	8.351	17	0.491	
Total	35.926	53	0.678	

[+]54 Cases were processed.

[+] 0 Cases (0.0 per cent) were missing.

* $p<0.05$

** Not significant

Table 42. Analysis of Variance: Skills Prerequisite to Studying and Learning in School, Reading and Math.

Source of Variation	Sum of Squares	df[+]	Mean Square	F
Covariates	6.190	2	3.095	8.791*
Sex	5.918	1	5.918	16.811*
Age	0.132	1	0.132	0.375**
Main Effects	15.743	17	0.926	2.631*
Prereading Skills	4.672	8	0.584	1.659**
Math Skills	3.748	9	0.416	1.183**
2-Way Interaction	8.008	17	0.471	1.338**
Explained	29.941	36	0.832	2.363*
Residual	5.985	17	0.352	
Total	35.926	53	0.678	

[+]54 Cases were processed.

[+] 0 Cases (0.0 per cent) were missing.

* $p<0.05$

** Not significant

Descriptive variables were combined to see if their two-way interactions (first order effects) were significantly related to between group differences in level of adjustment.

Of the ten possible two-way interactions, none achieved significance in differentiating the levels of adjustment. Examination of the main (joint) effects, however, shows that all but two (Table 40 and 41) achieve significance ($p<0.05$) in differentiating the groups. In some cases (Tables 34, 38, 39, and 42) the factors (descriptive variables) are not significant individually, although because the association between the variables is strong and positive, the joint or additive effects significantly discriminate the adjustment levels.

Interpersonal understanding and action pattern behavior main effects (Table 33) are highly significant ($p<0.01$). The only other main effects that attain the same degree of significance are action pattern behavior and reading skills prerequisite to studying and learning in school.

Originally, the author intended to test the following minor hypotheses:

Hypothesis 5a: Low adjusted functioners who are seen by peers as negative, but see themselves positively are no different than other low adjusted functioners on the developmental variables.

Because there were too few low adjusted functioners identified by negative peer perception and positive self perception scores (n=6), this hypothesis was not statistically testable.

Hypothesis 5b: Low adjusted functioners who are seen by classmates as negative, and who see themselves negatively are no different than other low adjusted functioners on the developmental variables.

The subgroup of children identified with low peer and self perceptions was also too small (n=11) to be tested statistically. The author was not able to test for differences between children identified for Hypothesis 5a and 5b because the difference in the n for the two groups was too great to lend itself to a *t*-test of independent groups.

Hypothesis 5c: High adjusted functioners seen positively by peers and teachers and negatively by themselves are no different than other high adjusted functioners on the developmental variables.

There were only three children in the high adjusted group who had negative self perception scores. This hypothesis was also not amenable to statistical analysis.

It was not possible for the author to predict whether the categories in the minor hypotheses could satisfy statistical criteria prior to the screening from the population pool (n=408).

The results of these analyses for Hypothesis 5 indicate that there are relationships within level of adjustment when the descriptive variables are considered together. The regression analyses placed an order of importance of each variable in predicting level of adjustment as represented by teacher and peer perceptions. The variables most predictive of adjustment status were interpersonal understanding and action pattern behavior. The orders of importance for the variables were different for each group. Analyses of variance were completed for all combinations of the variables. All except two of the ten two-way analysis of variance's which were computed significantly differentiated the levels of adjustment although none of the two-way interactions were significant. Interpersonal understanding and action pattern behavior attained the highest significance in differentiating the groups. The minor hypotheses were not testable because the number of subjects identified was insufficient to satisfy statistical criteria.

Summary of Results

According to the central purpose stated at the beginning of Chapter 4, there is a relationship between levels of

adjustment as rated by teacher and peer perception (either of which can be used with the same predictive power) regarding developmental pattern of action stage. High adjusted children have advanced stage scores when compared to middle and low adjusted children. Peer perception and its relationship to level of adjustment best predict interpersonal understanding. All adjustment groups can be discriminated on this variable and indicate that as the move is made from high to low peer status, level of interpersonal understanding decreases. Level of adjustment as it relates to teacher perception is the best predictor of outcome on perceptual-motor functioning. The low adjusted group was shown to be functioning at a lower developmental age than middle or high adjusted group. Also low adjusted children were shown to possess the skills prerequisite to studying and learning in school to a lesser degree than higher adjusted children when they entered first grade.

When all descriptive variables were considered together, interpersonal understanding and action pattern behavior were the best predictors of level of adjustment as represented by teacher and peer perceptions. The combination of interpersonal understanding and action pattern behavior differentiated the levels of adjustment with the greatest degree of significance.

CHAPTER V
DISCUSSION, SUMMARY, AND RECOMMENDATIONS

Analyses of the data comparing developmental and descriptive variable relationships with differences between high, middle, and low adjusted children resulted in rejecting all of the null hypotheses at the 0.05 level. The results indicated that the developmental process variables are related to level of adjustment as represented by teacher and peer perceptions; that is, as the children's rating moves from high to low adjustment, the developmental stage is lower for action pattern behavior, interpersonal understanding, and perceptual-motor functioning. Skills prerequisite to studying and learning in school were also found to be related to adjustment in a similar manner.

Limitations of the study will be considered first, followed by a review of each hypothesis, a discussion and summary of results with implications for counselors and teachers, and a final section will include suggestions and recommendations for further research.

Limitations of the Study

It is recognized that the following limitations are inherent in the study:

1. The study was limited to Broward County school children whose parents granted permission for them to participate in the screening phase. Seven per cent (31 of 439) of the parents did not grant permission for their children to participate in the peer assessments.

2. The author administered the peer and self perception instruments in the screening phase (n=408). All interviews and tests given to the sampled population (n=54) were also administered by the author.

3. In administering the interviews and tests, order was not varied, therefore possible fatigue effects or other types of order effects were not controlled.

4. Standard scores and stanines (for the Bender Gestalt Test for Young Children and the Comprehensive Test of Basic Skills, respectively) rather than raw scores were used in the Analysis of Variance because of computer core size limitations. Raw scores were used in the regression analyses.

5. Children were screened into groups on the basis of teacher, peer, and self perceptions. There were 28 girls and 26 boys (Table 2) in the study; however, it was not possible to balance the groups on this characteristic.

6. Prior research indicates that within the age range assessed, sex-related development is relatively parallel (Koppitz, 1963, p. 33; 1975, p. 31; Luria, 1973, Appendix E; Selman, Jaquette and Lavin, 1977, p. 21). This did not

appear to be true in the current study in terms of adjustment. When sex was considered as a covariate in analyses for Hypothesis 5 (Tables 33-42), it was found to have a significant influence ($p<0.05$).

7. The screening pattern for the low group was significantly different from the high and middle groups (Table 5-6).

8. The screened chidren were for the most part white (n=45); therefore generalizability to other racial groups is questionable (Table 2).

9. Four children in the high group produced nonratable stories for the assessment of action pattern behavior (Table 10). Statistical analyses for Hypotheses 1 and 5 on this variable for the high adjusted group therefore have a markedly low number of subjects for comparison (n=13).

Hypotheses, Discussion, and Summary of Results

Action Pattern Behavior

Hypothesis 1 stated in null form was: Level of adjustment has no relationship to the developmental patterns of action behavior expressed in form analysis of narratives.

The multiple correlation of level of adjustment as defined by teacher and peer perceptions with action pattern behavior was 0.53 ($p<0.01$). Either perception can be used with essentially the same predictive power regarding the

developmental process variables. Significant differences based upon t-tests between the means for each group show that the high adjusted group has significantly higher stage scores when compared to the middle and low adjusted group. On the basis of these analyses, the null hypothesis was rejected.

High adjusted children whose stories were ratable were able to switch principles of action behavior (Stage 4) within narratives. This ability is characterized by (1) the planning of action and the ability to switch the principle of action appropriately during an ongoing activity and (2) to reprogram it according to new situations and demands. Neuroanatomical myelination of various structures of the frontal lobe system (FLS) around the age of four years correlates positively with this capability (Yakovlev and Lecours, 1967; Pontius, 1974). These Stage 4 children are therefore considered to be functioning at a frontal lobe system maturity appropriate for their age according to the form analysis of narratives.

The following story illustrates the response of a high adjusted child when asked what she might do if she were in circumstances similar to those in the Friends' Dilemma presented by audio-filmstrip:

> If I was walking over to Mindy's house,
> then she'll say, "What do you want?"
> and I'll say, "I want to play with you,"

> and she might say, "No." Then that we'll call friendship. And umm, if I was just walking over from my house and I said, "I can't play now, I have some studying to do; then I'd say, "Mindy, would you like to play with me after?" and she might say, "Yes" or "No." Well, the ending of this story is, well see, when I was home I called her and say, "Mindy, do you want to play with me now or do you want to go to the water-ball game?" This is the end of the story and then my mom would take us and that would be called friendship, and then we would be friends a lot of time.

The underlined phrases are action plans. The child telling this story begins with the action or process of "walking over" and interrupts this action with the circumstance of "have some studying to do" which is another plan. She changes plans appropriately, calls later from home and plans another switch "do you want to play with me now or do you want to go." Plans and changes in plans due to intervening circumstances during an ongoing plan are switched appropriately and in an orderly sequence.

Thirty-seven per cent (Table 10) of the low adjusted group could also switch plans appropriately in their narratives even though as a group, a child who performed at a lower level of action pattern behavior was likely to be from the low adjusted group significant at $p<0.05$ level. The following narrative was conceived by a low adjusted child when asked what he would do in circumstances like the Friends' Dilemma:

"I have a good idea," said one little boy, "We could all make a puppet show and then we could go like this in front of the boys and all the girls."

"No, I mean we could be clowns too," said another girl.

"Okay, let's be clowns, let's disguise our faces and it will be fun. We'll put on some mask and everyone can do their faces with make-up and everything." All the boys and girls and then they had fun time and they were giving people balloons. They had a fun fun time, the clowns, and people gave nice stuff to the clown and it was a nice day. And it was 12:00 and it was over and everyone had to eat lunch. The end.

This child played several parts in his story. The plan of action was to "make a puppet show." The intervening circumstance is a suggestion that "we could be clowns." The action is interrupted and switched to "let's be clowns" and actions follow in an appropriate manner.

The low adjusted children who produced stories in Stage 4 have achieved the maturational level expected. The middle adjusted group was also composed of children who could switch ongoing actions appropriately although they were not as a group considered significantly different ($p<0.11$), from the low adjusted children on the action pattern process level.

In contrast, low adjusted children who were unable to switch principles of action, illustrated this inability in the narratives. A low adjusted child gave the following narrative:

> He robbed me on his bike. He let me come to his house. And Junior let me come in his house too. And we played fightin. And then he go get Mark. And then we be playin ridin on a bike. And Mark be tryin to catch up. And we on a bike. And then we jump ramps. And then when Mark daddy get home, he had to go in the house. Then so we go in Junior house, and then when we come out of Junior house, we start playin bikes and jump ramps.

This story shows an inability to switch the principle of action appropriately (Stage 2). The first principle of action presents an intervening circumstance which does not interrupt the activity of playing. Another illustration of this phenomenon is in the following narrative where a child "gets into arguments" and continues "to play" as though there is no recognition that anything has intervened:

> Me and baby brother sometimes get into arguments and even we sometimes play fight and we play space giants and even Roger comes over and even plays space giants and we have a lots of fun. We ride our bikes and play with the toys, we do a lota things and even play with my baby brother; we take a sheet and start swingin um, and even my baby brother starts swingin me, and my other baby brother starts swingin Roger, and even I swing Roger and Trevor. That would be a lota fun, swingin and swingin and swingin. Everytime me and Roger go to the park that would be so much fun. I would be happy.

The implication for children who are still unable to switch principles of action in first grade, is that they are maturationally lagging behind same aged peers. These

children are not able to reprogram tasks upon verbal command. Pontius (1973a) suggests that this inability is related to improper interaction between the system concerned with directly perceived stimuli and the system dealing with symbolic verbal elaboration. The children in this subgroup of low adjusted functioners may appear to not be listening to instructions, but in effect, the child lacks the physiological readiness to respond consistently to verbal commands to change what he/she is in the process of doing. This is a Frontal Lobe System immaturity associated with the mediation of the capability essential for mature interactions with others.

The neurodevelopmentally lagging child is believed to be naughty, impulsive and willful and may also be blamed for inappropriate behavior when he/she really lacks control. It takes little imagination to envision the beginning of a vicious cycle in the child's attitude toward self. Counselors and teachers who are aware of lacks in maturational readiness and therefore the needs of the child can provide what is necessary. A child functioning in a lower stage capability simply must be reminded in concrete terms when he is to change an action in which he/she is involved: A tap on the head or shoulder can suffice to redirect the attention of the child.

Interpersonal Understanding

Hypothesis 2 stated in null form was: Level of adjustment has no relationship to developmental stage of interpersonal understanding.

The multiple correlation of level of adjustment, as defined by the screening perceptions, with interpersonal understanding was 0.60 ($p<0.01$). Based on t-tests for significant stage differences (Table 17) between interpersonal understanding for each group indicated that all groups are significantly different from one another ($p<0.01$) with the order of difference in the expected direction; high adjusted children are reasoning at advanced levels when compared to the middle ($p<0.01$) and low ($p<0.01$) adjusted children. Middle adjusted children are also more advanced than the low adjusted children ($p<0.01$). On the basis of these analyses, the null hypothesis was rejected.

The Friendship Interview (Selman, 1977a) is a semistructured interview which was designed to study one aspect of the childs' developing conception of the social world. It relies exclusively on verbal manifestations of social knowledge, specifically interpersonal understanding, within a hypothetical context. A filmstrip depicting an interpersonal dilemma was viewed by each child and was followed by a series of semi-structured interview questions (Appendix H) which was altered only when children were unfamiliar with

certain words or phrases. This flexibility, inherent in the clinical technique (Piaget, 1929, pp. 8-9), is to assure that all children have a comparable understanding of the questions being asked them.

Selman (1977a) explicitly states that friendship knowledge derives in large part from social perspective taking. As presented in Table 15, all high adjusted children functioned in Selman's level-1 and level-2 developmental process stage. The following exemplifies a level-1(2) response to an issue-concept question on friendship formation:

Pat: What makes it important to have a best friend like Jayne?

Jan: Because you can have someone to play with everyday; you don't get in fights, like you make up every time.

Pat: Is there anything else that makes it important to have a best friend?

Jan: Yeah, this way you are not left alone.

Pat: So you are not alone, you don't fight, and you have someone to play with; these are all reasons for best friends.

Jan: Yeah, because this way when you are playing something and you meet new people and you are the only one there and your next door neighbor is home, you can ask her to play with you. You don't have to play alone, because your mom and dad can't play. They think all the games are baby games sometimes. That's why you need best friends. This way they can play games with each other, this way you don't have to be alone all the time and play games by yourself.

Pat: Anything else?

Jan: Yeah, because when they are sad and they don't have anybody to talk to, they can tell their best

friend and maybe they can help them be happy and they can help if you have a fight with someone else.

This dialogue illustrates the child's level-1 perspective taking ability. The child acknowledges the subjective, "psychological" perspective of persons and friendship relations (i.e., "you are not left alone," "they are sad"). Also there is the realization of differentiated perspectives (i.e., Parents think "all games are baby games"). This particular example also demonstrates level-2 reasoning in which the child develops notions that are reciprocal and rely on two-way subjectivity (i.e., "when they are sad . . . they can tell their best friend and maybe they can help them be happy").

In contrast, a child reasoning at level-0 responded as follows:

Pat: What makes it important to have a best friend like Tammela?

Meg: She plays with me when I get home from school.

Pat: She plays with you after school, is there another reason that it's important to have a best friend?

Meg: She came to my birthday and her sister came to my birthday too.

Pat: She came to your birthday, is there anything else that you can tell me?

Meg: No.

Level-0 ability is distinguished by a failure to differentiate the psychological from physicalistic qualities or

attributes of people (i.e., "she plays with me," "she came to my birthday"). There is also an inability to define friendship beyond momentary or repeated incidents of interaction between two people who came together to play. Another example which illustrates the level-0 capability and its physicalistic qualities follows:

Pat: What makes Daniel your best friend?

Jon: Daniel plays football a lot and lives next door.

In this example, a friend is someone that lives nearby. The relationship is defined by physical proximity and activity.

Selman's work (1976a) suggests that prior to six years of age the child is functioning at level-0. The child has an egocentric or undifferentiated perspective and this can be seen in the limitations of early friendships to physical or geographical associations. Forty-two percent of the low adjusted children were functioning at this process level. None of the children are under six years of age (Table 2).

Level-1 functioning usually occurs between the ages of 6 and 8. It implies new awareness of internal psychological phenomenon which direct or influence external or observable social actions of persons, and that the psychological perspectives of self and other need to be seen as separate and independent (differentiated). Interviews completed by the middle adjusted group were at this interpersonal understanding level with only one child having mixed level-1 and

level-2 capability (1(2)). Children in the low adjusted group were also reasoning at level-1. Forty-seven per cent of the high adjusted children were reasoning at level-1 and 35 per cent had mixed level-1 and level-2 capability (1(2)). The remaining 18 per cent of the high adjusted group were reasoning at level-2. This ability is not expected until a child is 9 and 10 years of age. It is characterized by a reciprocal or self-reflective perspective taking ability.

The current research shows that children who are capable of higher levels of interpersonal understanding are more positively perceived by teachers and peers. Children who are functioning as if the world and self are not differentiated (level-0) are seen negatively by teachers and peers. It has been shown that low peer-ranked socially adjusted children are at risk in terms of positive adult adjustment (Cowen, Pederson, Babigian, Izzo, and Trost, 1973; Cantwell and Baker, 1977; Gottman, Gonso, and Rasmussen, 1975). A preventive measure may be the stimulation of interpersonal understanding development at the entrance into the school system since the child's attitude towards self is beginning to be influenced by teachers and peers. Counselors and teachers aware of developmental interpersonal understanding lags can encourage remedial intervention. Mixed age groupings so that children with interpersonal understanding developmental lags can be exposed to advanced stage thinking

may be of preventive value. Also counselors and teachers can stimulate awareness by presenting dilemmas designed to (1) illustrate higher stage capabilities and to (2) facilitate discussions with questions and reflections that contain components of higher stage social reasoning.

Perceptual-Motor Functioning

Hypothesis 3 stated: Level of adjustment has no relationship to perceptual-motor functioning.

The multiple correlation of level of adjustment, as defined by teacher, peer, and self perceptions, with perceptual-motor functioning was 0.40 ($p<0.05$). The t-tests indicated that the low adjusted group mean for perceptual-motor functioning is significantly higher than means for the high ($p<0.05$) and middle ($p<0.05$) adjusted group. The middle adjusted group, although higher, is not significantly different from the high ($p<0.66$) adjusted group. Higher means indicate that students are functioning at a lower developmental age. On the basis of these analyses, the null hypothesis was rejected at the 0.05 level.

Although perceptual-motor functioning is significantly related to level of adjustment as defined by teacher, peer, and self perceptions, this correlation is not as high as action pattern behavior (0.53) or interpersonal understanding (0.60) correlations. Teacher perception is first in order of importance as a predictor of visual-motor functioning,

whereas peer perception is the first in order of importance as a predictor for action pattern behavior and interpersonal understanding.

A nine year study (Koppitz, 1973) of performance on the Bender compared with school achievement found that a good Bender record at the time of school entry tends to be a good predictor of later school success. It is also associated with good intersensory integration and good mental ability. An immature or poor Bender score, on the other hand, may be associated with either good, average, or poor school achievement. Possibly teacher perceptions are more attuned to achievement capabilities of a child and peer relations are more influenced by interpersonal understanding abilities and action behavior. Seven of the low adjusted children were attending remedial reading classes (ESAA), three were repeating first grade, two were learning disabled and one was identified as an emotionally handicapped child by the school system while the study was in process.

It is of interest that the low adjusted group has Bender scores which are significantly above (i.e., high score is a poor score) the high and middle adjusted group. Koppitz (1975) points out that some school beginners with poor Bender scores are merely young or immature for their class; they may be normal children with developmental lags. There is nothing "wrong" with these children; they just need

a little more time to mature, many of these children get to be average or even outstanding students.

According to Koppitz (1975) some children with poor Bender scores are not just immature, they suffer from real malfunctioning in visual-motor perception or intersensory integration. Yet if they are bright, if they have good language ability and recall, if they are well motivated, if they have no major behavior problems, and if they have supportive parents and teachers, they can overcome or compensate for perceptual-motor problems and may in time turn into good pupils. On the other hand, Koppitz (1975) reports that children with poor visual-motor perception who also have problems in several other areas may not be able to overcome their perceptual difficulties and may develop serious learning disabilities. In the current study, four children in the low adjusted group were functioning at a perceptual-motor developmental age of four and five year olds (Table 19. These children all attended remedial reading classes and were functioning at level-0 on the interpersonal understanding continuum. Compounding the problem created by these lags, they are perceived negatively by teachers and peers. These factors may create quite an obstacle to the future adjustment of these children.

In contrast, there were four middle adjusted children who had lagging visual-motor scores (functioning at a

developmental age of five years). Two of these were in remedial reading classes, one was a speech-impaired child, and one was considered gifted. All had age appropriate developmental scores on interpersonal understanding and middle status in perceptions by teachers and peers.

There were four children who were ahead of their peers in perceptual-motor development in the low adjusted group (Table 19). One of these was not able to switch principles of action, all were functioning at level-0 on interpersonal understanding (one of which was an identified learning disabled child and another was in remedial reading classes), and one was only 6 years and two months of age (the youngest child in the study). All of these children had extreme negative teacher, peer and self perception ratings. From the Bender these children are actually maturationally beyond same aged peers in perceptual-motor functioning. It appears that the maturational lag is social in nature perhaps due to an interaction of factors that are environmental and associated with adjustment in group (i.e., family and school).

Several possibilities may be inferred in these diverse observations. Adjustment in school depends only partially on perceptual-motor integration. This agrees with Koppitz findings (1973, 1975). Many other factors appear to influence the meaning of this characteristic for low adjusted as well as middle adjusted children. Perhaps a combination of

variables, as used in the current study, may help delineate differential aspects of maturational lag; all low adjusted children were lagging on interpersonal aspects, only some of these were lagging on perceptual factors. Counselors and teachers aware of these differences can provide intervention appropriate to the needs of the child.

Skills Prerequisite to Studying and Learning in School.

Hypothesis 4 stated: Level of adjustment has no relationship to skills prerequisite to studying and learning in school.

Skills prerequisite to studying and learning in school were based on prereading and math scores on the Comprehensive Test of Basic Skills (CTBS). The multiple correlation of screening perceptions with prereading scores was 0.51 ($p<0.01$). The multiple correlation of screening perceptions with mathematics scores was 0.36 ($p<0.05$). Teacher perception is the first in order of importance as a predictor of these skills. The *t*-tests indicated that both prereading and mathematics scores significantly differentiated the high ($p<0.05$, 0.05, respectively) and middle ($p<0.05$, 0.05, respectively) adjusted group from the low adjusted group (i.e., These two groups performed significantly better than the low adjusted group). The middle group was not significantly different ($p<0.24$, 0.09, respectively) from the high adjusted group on either score. On the basis of these analyses, the null hypothesis was rejected.

The importance of these findings is that children within the low adjusted group possess the skills prerequisite to studying and learning in school to a significantly lesser degree when they enter first grade. Compounded with the non-intellectual factors (action pattern behavior, interpersonal understanding development, perceptual-motor integration) which have been explored in the previous sections, these children are characterized by lags in many areas, not the least of which are skills necessary for success in school.

In order to formalize a program from which to organize and act in terms of prevention of continued adjustment problems, all factors must be taken into consideration. Children who are lagging behind same aged peers may need time in activities characteristic of younger children. This experience can be structured. In general, activities can be provided which revolve around the tactile-motor orientation rather than the developmentally later (tactile) visual orientation required at school entrance (Pontius, 1973a). Games for remedial developmental assistance could be patterned after Trail Making Test B (Reitan, 1955) or the Wisconsin Card Sorting Test (Grant and Berg, 1948). These activities would provide practice with switching principles of action and could be followed after tactile-motor success to making increasingly smoother transitions between actions by external verbal command.

Also children who are lagging might be encouraged to trace forms and shapes blindfolded (or with eyes closed) with intact stereognosis and describe what he/she knows about the object. The basic purpose of this type of remediation stresses the necessity of connecting, firmly, enough sensory experience with propositions of the conceptual system. At school entrance the child is required to have a conceptual system which is unified in ordering and surveying sense experience. This may not be the case for the maturationally lagging child whether the lack is due to environmental and/or physiological factors. Counselors can help teachers organize experiential tasks appropriate for each child and integrate these needs into group experiences.

Relationships of Adjustment Level and the Descriptive Variables When Considered Together

Hypothesis 5 stated: There are no significant relationships between level of adjustment and the descriptive variable scores when considered together.

In order to test the major hypothesis, multiple correlation of teacher and peer perceptions with the combined descriptive outcome scores are 0.78 ($p<0.01$) and 0.76 ($p<0.01$), respectively. The self perception regression did not show significance. The descriptive variables in the prediction equation for the total sample population that explained the greatest amount of variance in both teacher and peer

perceptions were interpersonal understanding and action pattern behavior.

Main effects and two-way interactions (first order effects) of the descriptive variables within the prediction equations were assessed by two-way analysis of variance. Sex was found to be a significant covariate ($p<0.05$) in each of the ten possible combinations (see Table 33-42). Of the ten possible two-way interactions, none achieved significance in differentiating the levels of adjustment. Examination of the main (joint) effects, however show that all but two (Table 40-41) achieve significance ($p<0.05$) in differentiating the levels of adjustment.

In some cases the factors are not significant individually, but because the association between the variables is strong and positive, the joint or additive effects significantly discriminate the adjustment levels. On the bases of these analyses for the major hypothesis the null form was rejected.

The minor hypotheses were not testable because the number of subjects identified was insufficient to satisfy statistical criteria. Stated in null form they were as follows:

Hypothesis 5a

Low adjusted functioners who are seen by peers as negative, but see themselves positively are no different

than other low adjusted functioners on the developmental variables.

Hypothesis 5b

Low adjusted functioners who are seen by classmates as negative, and who see themselves negatively are no different than other low adjusted functioners on the developmental variables.

Hypothesis 5c

High adjusted functioners seen positively by peers and teachers and negatively by themselves are no different than other high adjusted functioners on the developmental variables.

The findings of Hypothesis 5 represent a composite view of the structural nature of the research herein investigated. The analysis is structural in that it refers to developing patterns of reasoning ("the how" or process) that underlie beliefs, opinions, or choices ("the what" or content). The author has assessed "the how" and "the what" of interpersonal understanding and action pattern behavior and their relationship to teacher and peer perception. These are interpersonal variables. Impersonal variables included perceptual-motor functioning and skills prerequisite to learning and studying in school.

Children included in the study were chosen by teacher, peer, and self perceptions. Peer and teacher perception may

be measuring the same characteristic in this study as indicated by almost identical zero order correlations with the interpersonal understanding and action pattern variables. The prediction equation for both perceptions is also almost identical. Interpersonal understanding is first in order of importance for either equation and action pattern behavior follows second. The association of these variables accounts for 49 and 52 per cent, respectively, of the variation within either of the perceptions. The Pearson r for interpersonal understanding and action pattern behavior without taking adjustment into consideration, is 0.39 ($p<0.01$). This association discriminated high adjusted functioners from low adjusted functioners ($p<0.01$). Perceptual-motor functioning and skills prerequisite to studying and learning in school have first order correlations of -0.76 with reading and -0.60 with mathematics; however, when the variables are added to the regression equation they account for only 12 and 6 per cent of the variation in teacher and peer perceptions, respectively after interpersonal and action pattern variables are entered. As can be seen from Table 43, which summarizes the significance of two-way analysis of variance for main effects, unless reading, math, or perceptual-motor functioning (impersonal variables) are combined with action pattern behavior or interpersonal understanding, significance in discriminating high from low adjusted functioners is not

Table 43. Significance of Two-Way Analysis of Variance for Main Effects with Exact p Value.

Descriptive Variable Combinations	Factor Effects (p Value)	Main Effects (p Value)
Action Pattern Behavior Interpersonal Understanding	0.076 0.006	0.001
Action Pattern Behavior Perceptual-Motor Functioning	0.094 0.189	0.043
Action Pattern Behavior Reading	0.106 0.004	0.001
Action Pattern Behavior Math	0.309 0.009	0.002
Interpersonal Understanding Perceptual-Motor Functioning	0.012 0.566	0.022
Interpersonal Understanding Reading	0.203 0.374	0.017
Interpersonal Understanding Math	0.163 0.538	0.039
Reading Perceptual-Motor Functioning	0.113 0.862	0.142
Math Perceptual-Motor Functioning	0.111 0.572	0.126
Reading Math	0.181 0.365	0.027

achieved; however, when reading and mathematics are combined they successfully discriminate high and low adjusted. Even though the impersonal variables have significantly high correlations ($p<0.01$) their relationship does not show significance when level of adjustment is taken into consideration. Therefore, even though these variables are important in terms of their interrelationship, their association does not add knowledge about a child's adjustment functioning in group or as perceived by teachers. If peer-ranked social adjustment is a powerful predictor of adult adjustment, it is conceivable that interpersonal understanding and action pattern behavior are related to developmental lag and need to be taken into consideration when a low adjusted child enters first grade. This does not imply that cognitive abilities are not important; the research is suggesting that underlying interpersonal developmental issues may be the primary determinants of successful adjustment and/or successful achievement.

Previous research data show that perceptual motor functioning (Koppitz, 1975, p. 31) shows no significant differences between scores of school-aged boys and girls. However, boys and girls do differ in their behavior and school achievement. For instance, in a recent study (Koppitz, 1973) 13 of 15 students with poor kindergarten Bender Test records who developed into good eighth-grade students were

girls. This was not a chance effect ($p<0.05$). There is a significant difference in the relationships of Bender Test scores of boys and girls and school achievement. This is illustrated in a study by Oberstein (1968). She reports a correlation of -0.55 between Bender Test scores and reading test scores for first grade boys, compared to a correlation of only -0.39 for the girls. For her third-grade pupils the correlation between test scores was -0.48 for the boys and -0.24 for the girls. This difference is not due to any difference in perceptual-motor functioning, but to some of the other factors that affect school progress.

It can be seen from Table 2 that the high adjusted group is predominantly female (14 girls and 3 boys) and that the low adjusted group is predominantly male (6 girls and 13 boys). The writer was unable to identify high adjusted boys by the rating instruments. This finding has some implication as it relates to Koppitz (1975). She observes that boys with immature Bender Test scores are usually poor readers, while girls with immature Bender Test scores may have either high or low achievement in reading. Since girls tend to be better controlled, less hyperactive, more advanced in language development, and more striving than boys, they are also better able to overcome or to compensate for problems in the perceptual-motor area (Koppitz, 1975). Therefore, many girls are successful in their school work despite immature

Bender records at the beginning of school. At school entrance boys, however, are often impulsive and restless. Even without specific difficulties in perceptual-motor integration they are often at a disadvantage in school. To date, many school activities and requirements in the primary grades still favor girls over boys. The boys' nonconforming behavior not only interferes with their classroom learning but also influences the teacher's attitude toward them. When immature, restless boys also suffer from poor perceptual integration, their school progress will most likely be slow and painful, and compensation for poor visual-motor perception will be difficult. Therefore, a boy with immature Bender performance is more likely to have poor achievement than a girl with a poor Bender Test score, even when Bender scores and IQ scores are the same (Koppitz, 1975; Keogh and Smith, 1969; Norfleet, 1973). Is it possible that girls are encouraged to compensate by significant others because of better interpersonal functioning and behavioral factors mentioned above?

Since children were chosen for inclusion in the study primarily on the basis of teacher and peer perceptions, the question in relation to sex differences is complex. Girls may be perceived for high peer and teacher ratings on the basis of impersonal functioning (See Appendix J) as suggested by the current study. The fact is that they are also as a group high on interpersonal variables. The low adjusted group are best predicted by action pattern behavior,

an interpersonal variable. There are 13 boys in this group. The primary factor which separates these children into the low adjusted group is lower interpersonal understanding development. The middle adjusted group are predicted by interpersonal variables (Appendix J). There are eight girls and ten boys at this adjustment level. Three of the girls attended remedial reading classes and one was a learning disabled child. All children in the middle group who functioned at lower action pattern stages (Table 10) were girls except one.

Interpersonal understanding and action pattern behavior are the best predictors when all children in each level of adjustment assessed by teachers and peers are combined. The individual predictions for each group may add some clarification as to the sex differences. Possibly girls that are maturationally precocious are more ready for the requirements of the emphasis on cognitive development that is of primary concern in educational objectives of this era. This may relate to their high status within the school group system. Also, if they have deficiencies as girls in the middle group possess, it is tolerable. This is perhaps due to the bias Koppitz (1975) suggests; they are not perceived negatively, and because of this, may have better chances of positive adjustment. The preponderance of low adjusted boys may be related to the fact that immaturity in boys is more often

perceived as negative than it is for girls who may possess equal impersonal functioning lags. These problems of relating are attenuated by an expectation to achieve on cognitive tasks which can not be met. Further research including more children of both sexes is necessary in order to test these inferences.

What appears clear at this point, is that girls are recognized as high adjusted more often than boys within a school group setting. They have higher maturational capabilities on the physiological variables, one of which is interpersonal (action pattern behavior) and the other is impersonal (perceptual-motor functioning). Boys low on these two variables are visible in the low adjusted group. Overall, interpersonal understanding predicts adjustment whether it is based on peer or teacher perception. Adjustment problems are related to interpersonal understanding. If this is attenuated by sex bias (Koppitz, 1975), prevention of continued low status in group (and perhaps, eventual adult maladjustment), may be related to expectations teachers have regarding the emphasis on cognitive developent. It directs us to the importance of facilitating interpersonal development as a primary issue at school entrance. This could place a secondary importance or minimum parallel importance on impersonal or cognitive development. Counselor education programs can be instrumental in university and school

settings in teaching the processes of recognizing, implementing, and developing curricula relevant to each child's level of social functioning.

Suggestions and Recommendations for Educational Objectives and Future Research

The current study observed two fundamental aspects of personality hypothesized to be significantly determined by events in the first three years of life. Theoretical critical periods which influence involvement with others (interpersonal understanding) and coping with problems presented by the environment (action pattern behavior) were assessed in the sixth year of life for high, middle, and low adjusted children.

Interpretation of the research indicates that level of functioning for these two variables is of primary importance in determining whether a child is considered high or low adjusted by both teachers and peers. Half of the low adjusted group had negative self concept perceptions. Previous research has indicated that adjustment in group at early age has been shown to predict adult adjustment (Cowen, Pederson, Babigian, Izzo, and Trost, 1973; Cantwell and Baker, 1977; Gottman, Gonso, and Rassmussen, 1975).

The findings of the current study suggest that pupils might benefit if emphasis is placed on development of interpersonal skill and on viewing a child from a developmental

diagnostic perspective rather than the current emphasis on cognitive educational objectives or impersonal characteristics at matriculation. Acknowledging the developmental process or "the how" of social reasoning and adjustment functioning might provide a nonrelativistic set of educational and theraperutic goals directed toward creating greater progress towards success in impersonal functioning. Teachers and counselors need to be taught developmental principles as they apply to all children and the specific capabilities of concern for each child. Behavioral interventions and teaching methodology which recognize developmental relationships, or what exists from the child's perspective, might more adequately provide a preventive measure for future adjustment problems. It is this author's conclusion, that a knowledge of the child's maturational readiness is essential for a teacher to understanding the particular remedial interventions to facilitate development of impersonal goals.

Teachers and counselors can develop and present materials that contain the range of developmental perspectives within stories and films, and facilitate discussions, drawings, and/or written stories that contain elements of all levels of perspective taking and action patterns. Research needs to be organized to assess traditional and developmental approaches to learning.

The concept of chronological age is no longer of primary concern in these suggestions. Research planned to evaluate the effectivenss of mixed age groups in school could focus on developmental as well as cognitive issues. Children need to be regarded in terms of maturational readiness and moved to impersonal tasks by virtue of developmental process changes rather than chronological age categories.

Further research might attempt a longitudinal investigation of children with high and low group status. Comparison of children taught by traditional methods with respect to primary emphasis on impersonal functioning and of children who receive recognition on developmental process issues (action behavior and interpersonal functioning) might provide additional insight as to the relationship of adjustment at an early age and adult outcome.

Teachers, counselors, and parents who are confronted with seeking strategies to help children grow would perhaps do well to attend to developmental aspects of social functioning and their influences on the cognitive abilities of young children who are facing heavy learning demands.

APPENDIX A
BRIEF SUMMARY OF INTERPERSONAL STAGE CONCEPTIONS
(Selman, 1974b)

PERSPECTIVE TAKING
(relation between perspectives of self and other(s))

Stage 0--Egocentric or Undifferentiated Perspectives

Although the child can recognize the reality of subjective perspectives (e.g., thoughts and feelings) within the self and within other, because he does not clearly distinguish his own perspective from that of other, he does not recognize that another may interpret similarly perceived social experiences or courses of action differently from the way he/she does. Similarly, there is still some confusion between the subjective (or psychological) and objective (or physical) aspects of the social world, for example, between feelings and overt acts, or between intentional and unintentional acts.

Stage 1--Subjective or Differentiated Perspectives

The child understands that even under similarly perceived social circumstances the self and other's perspective may be either the same or different from each others'. Similarly, the child realizes that the self and other may view similarly perceived actions as reflections of disparate or distinct individual reasons or motives. Of particular

importance, the child at Stage 1 is newly concerned with the uniqueness of the covert, psychological life of each person.

Stage 2--Self-Reflective or Reciprocal Perspectives

The child is able to reflect on his own thoughts and feelings from another's perspective--to put himself in the other's shoes and to see the self as a subject to other. This new awareness of the relation between self and other's perspective also allows the child to consider his own conceptions and evaluations of other's thoughts and actions. In other words, the child is able to take a second-person perspective which leads to an awareness of a new form of reciprocity, a reciprocity of thoughts and feelings (I know that he likes me; he knows that I like him) rather than a reciprocity of action (he does for me--I do for him).

Stage 3--Third Person or Mutual Perspectives

The subject at Stage 3, aware of the infinite regress potential of the chaining of reciprocal perspectives, moves to a qualitatively new level of awareness, the awareness of person's ability to abstractly step outside of an interpersonal interaction and coordinate simultaneously the perspectives of each party in the interaction. This ability to take the third person perspective leads to the awareness of the mutuality of human perspectives and hence of the self-other relationship.

Stage 4--Societal or In-Depth Perspectives

The subject conceptualizes subjective perspectives of persons toward one another (mutuality) to exist not only on the plane of common expectations or awareness, but also simultaneously at multi-dimensional or deeper levels of communication. For example, perspectives between two persons can be shared at the level of superficial information, at the level of common interests, or at the level of deeper and unverbalized feelings. Also, perspectives among persons are seen as forming a network or system. These perspectives become generalized--e.g., into the concept of society's perspective, or the legal or moral point of view.

APPENDIX B
AWARENESS OF CLOSE DYADIC FRIENDSHIPS
(Selman, 1974b)

Stage 0--Momentary Physicalistic Playmates

Dyadic friendship relations are based on thinking which focuses upon propinquity and proximity (i.e., physicalistic parameters) to the exclusion of others. A close friend is someone who lives close by and with whom the self happens to be playing with at the moment. Friendship is more accurately playmateship. Issues such as jealousy or the intrusion of a third party into a play situation are constructed by the child at Stage 0 as specific fights over specific toys or space rather than as fights which involve personal feelings.

Stage 1--One-Way Assistance

Friendship conceptions at Stage 1 are one way in the sense that a friend is seen as important because he or she performs specific activities which the self wants done or accomplished. In other words, one person's attitude is unreflectively set up as a standard, and the friends' actions must match the standard thus formulated. A close friend is someone with more than Stage 0 demographic credentials (e.g., lives close by). A close friend is someone who one knows better than other friends, in terms of one-way knowledge of other's likes and dislikes.

Stage 2--Fairweather Cooperation

The advance of Stage 2 friendships over the previous stages is based on the new awareness of interpersonal perspectives as reciprocal. The two-way nature of friendships is exemplified by concerns for coordinating and approximating through adjustment by both self and other, the specific likes and dislikes of self and other, rather than matching one person's actions to the other's fixed standard of expectation. The limitation of this level is the discontinuity of these reciprocal expectations. Friendship at Stage 2 is fairweather-specific arguments are seen as severing the relationship although both parties may still have affection for one another "inside." The coordination of attitudes at the moment defines the relation. No underlying continuity exists which maintains the relation and allows for a conception of the relationship during the period of conflict or adjustment.

Stage 3--Intimate and Mutually Shared Relationships

At Stage 3 there is the awareness of both a continuity of relation and affective bonding between close friends. The importance of friendship does not rest only upon the fact that the self is bored or lonely as at previous stages; at Stage 3, friendships are seen as a basic means of developing mutual intimacy and mutual support. Friends share personal problems; the occurrence of conflicts between

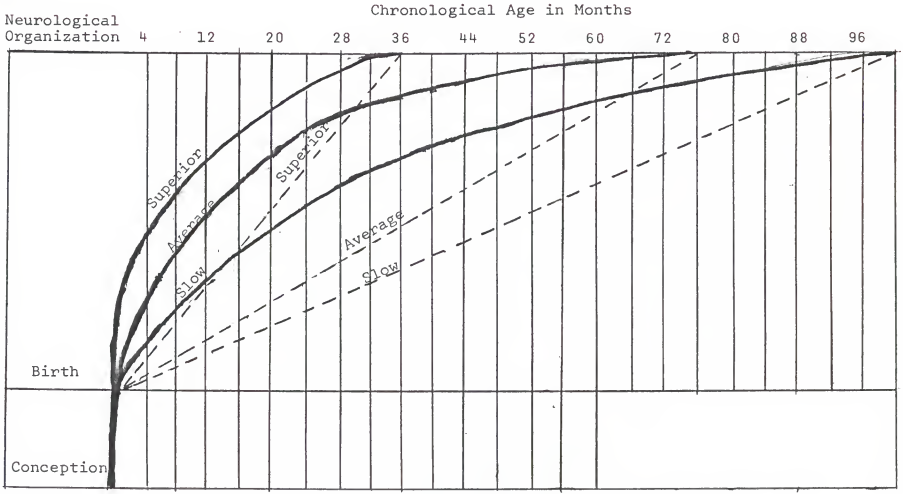
friends does not mean the suspension of the relation itself, because the underlying continuity between the partners transcends specific and minor foul weather incidents. The limitation of Stage 3 arises from the overemphasis of the two person clique, and the possessiveness that arises out of the realization that close relations are difficult to form and to maintain in that they take constant effort.

Stage 4--Autonomous Interdependent Friendships

The interdependence which characterizes Stage 4 is a sense that a friendship continues to grow and be transformed through each partner's ability to synthesize feelings of independence and dependence. Independence means that each person accepts the other's need to establish relations with others and to grow through such experiences. Dependence reflects the awareness that friends must rely on each other for psychological support to draw strength from each other, and to gain a sense of self-identification through identification with other as a significant person whose relation to the self is qualitatively distinct from less meaningful relations.

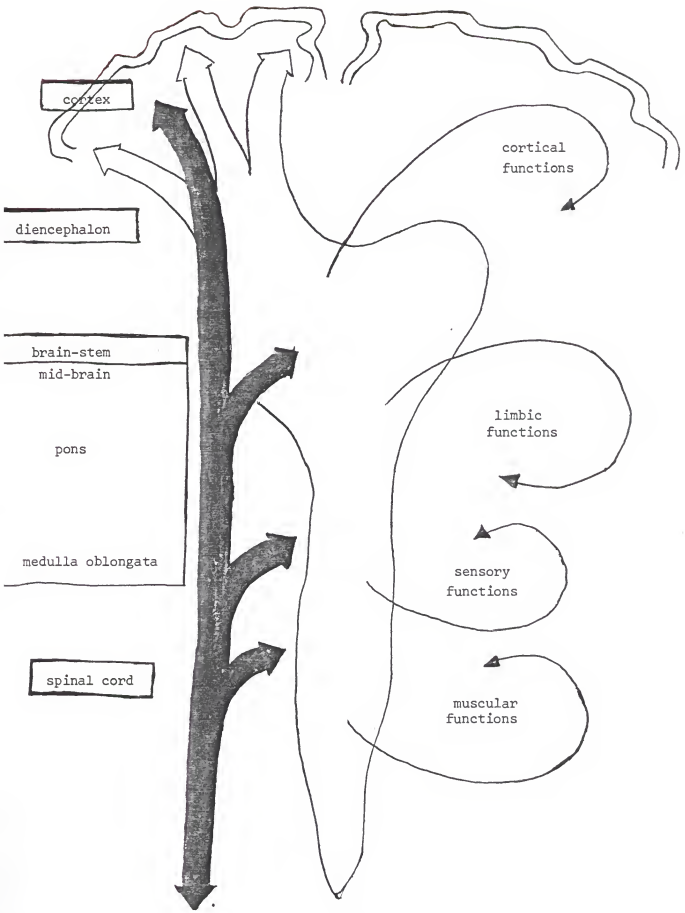
APPENDIX C
GRAPHIC REPRESENTATION OF NEUROLOGICAL GROWTH

The curves of neurological growth represent the observations in the normal child. The rate of neurological growth varies among normal children so that full capability in the six functions (walking, talking, writing, reading, understanding spoken language, and stereognosis) is attained by the age of three years in the superior child, six years in the average child, and eight years in the slow child. The level at which a child performs these uniquely human functions is his neurological age. The degree to which his neurological age conforms with chronological age is a measure of brain function, that is neurological organization. The ratio between the neurological age and the chronological age is a measure of rate of neurological growth. The curve representing neurological growth in normal children must be interpolated as a straight line drawn from birth to the time of the first evaluation.



(Lewin, Doman, Doman, Delacato, Spitz, and Thomas, 1966)

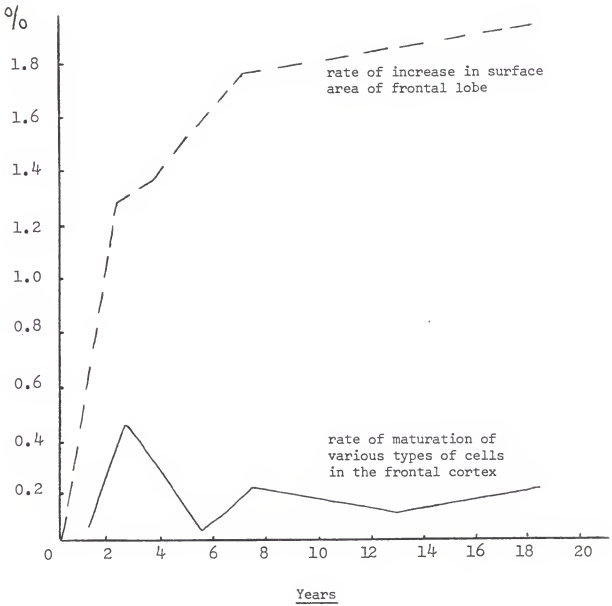
APPENDIX D
SCHEME OF THE ACTIVATING RETICULAR FORMATION


cortex
diencephalon
brain-stem
mid-brain
pons
medulla oblongata
spinal cord
cortical functions
limbic functions
sensory functions
muscular functions

APPENDIX E
RATE OF INCREASE IN AREA OF THE FRONTAL LOBES AND RATE OF INCREASE IN SIZE OF NERVE CELLS IN ONTOGENY (AFTER MOSCOW BRAIN INSTITUTE)

Recent observations relating to the dynamics of development of the frontal cortex are illustrated above. As the figure shows, the rate of increase in area of the frontal regions of the brain rises sharply by the age of three and a half to four years, and this is followed by a second jump towards the age of seven to eight years. The first of these periods is marked by a significant increase in the rate of growth of the cell bodies contained in the frontal regions of the cortex.

The frontal divisions of cortex have two-way connections not only with the lower structures of the brain-stem and diencephalon but with virtually all other parts of the cerebral cortex and thus are considered the superstructure of cortex. Within this context, observations have shown that the most complex forms of 'action acceptor' are associated with the frontal lobes, and that they not only perform the function of synthesis of external stimuli, preparation for action, and formation of programs (present and future), but also the function of allowing for the effect of the action carried out and verification that it has taken the proper course (Luria, 1973).


%
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
2
4
6
8
10
12
14
16
18
20
rate of increase in surface area of frontal lobe
rate of maturation of various types of cells in the frontal cortex
Years

APPENDIX F
DEVELOPMENTAL STAGES OF PATTERNS OF ACTION
(SPECIFIC TO FRONTAL LOBE SYSTEM MATURATION)
(Pontius and Ruttinger, 1976)

There are four stages specific of FLS maturation classified herein: Stage I (disjointedness of activity); Stage II (inability to switch the principle of action appropriately); Stage III (planning); Stage IV (ability to switch the principle of action of an ongoing activity appropriately). It has been shown that most normal children function at Stage I around two years of age; and most normal children function at Stage II only up to age 4 to 5. By that age they have outgrown the immature FLS functioning of Stages I and II and begin to enter the consecutively mature Stages III and IV. Having attained Stage IV involves more than planning, it involves the switching of a plan of an ongoing activity in accordance with changed circumstances, thereby also envisioning changed consequences.

Samples of Phase: Process Ratings of Stage Level

1. Examples of Stage I: Disjointedness of activities

   a) "Winnie the Pooh--got a balloon and wanna climb up, up the tree, and wanna get honey. That's all the story, and got up and the ballon get bust. He fall down and got on the balloon, and the balloon gone in a hole, and Winnie the Pooh got stuck in the hole, and got his head in the hole

and got honey all his mouth where his face, and lost all, and a finish, and started fall and stuck in all day, and Rabbit a pull it out and got in a bucket and put in a bucket full honey and gave a boy put his hou' and then the story is no more. Tha's all."

Comment: Even though the child is recounting a known story, soon the narration gets disjointed in most of its action patterns, which have no plan, lead nowhere.

b) ". . . Lot of aeroplanes in all this big black pointy cloud. Hiding. Can't get it, cos so deep. Can't see with their flatelies. I don't know how they'll get out. And there's a brown ball rolling down the snow with a big brown thing on him. Can't get out of there."

Comment: Disjointed actions are associated with loss of mastery: "I don't know how. . . ." No plan of action is formed.

c) ". . . Goldilocks, her leg got stuck on the door, they chase Goldilocks home. Goldilocks just put a fire off on her place. She said, 'Woo, the fire's still going' and ran off to the three bears."

Comment: Disjointed actions follow no principle, no plan, no goal and are thereby inappropriate, showing lack of mastery.

2. Examples of Stage II: Inability to switch the principle of action appropriately.

a) "Just that I watch a lot of sports. That's motor bike races, and I like to watch them, and my Mum sits down with me and watches them. Just a motor bike ready to race, and some are lined up and ready for the next race. All the other motor bikes are racing. Usually they smash up. We like to watch them racing and passing each other, and

how they go round the corners, because they go pretty low down with their feet, and well, usually when they start off, the first corner it's always a scramble, and that's another thing we like to watch."

Comment: Notice that there are two principles of action (not identical actions which would be perseveration, a different diagnostic entity); watching motions (sports), and the racing going on: racing, passing, going around corners, all these are not motions in which the principle of actions are actually switched, but the principle of action, which is racing here, contains them in its pattern. Even when a new situation arises, such as smashing up, the principle of action of racing merely continues. There is no switching of this principle to rescue efforts, etc. The smashing up itself is here in such a context a part of the principle of racing (at least as recalled from experience) it is not taken as a change of circumstances that warrants a switch of that principle. Therefore, at this Stage II the racing and the watching of it just continue in a way that has become inappropriate after a "smash up."

b) "It's a big robot person. He's crunching up a little car. Now he's nipping a building. It's getting smaller. He's a big robot. Now I draw a boy. He's a big boy with big eyes and small nose and a little mouth and short arms and one leg is long and the other's short. His foot got chopped. It's a little baby, I show ya, doing the same thing like the robot did, crunching up the building, and the other hand crunching up a little boy, dead. He ends up rusted. It's only a robot one. Rusted. See, all rusted. Tinny. He's rusted here. And the building end up smaller and smaller."

Comment: The principle of action is getting things smaller. This principle is carried out by various actors on various objects and in various ways, but as a principle it remains the same. (Notice the difference of this to perseveration, where it would be the same, concrete unit of action that would be repeated.)

3. Example of Stage III: Planning

a) "The little girl walking down the street, and the man hopped out of the car and asked her did she want some lollies, and the man was going to take her away, and he's going to kill her and that, and then he's going to go out and look for more little children and that to kill."

Comment: There is a plan to kill little children, all actions take place following this plan, in the present and in the future.

b) "Once upon a time there was a woman who had two babies. The woman wasted all her money getting the two babies for herself; she had no money, and only the chair she sits in, and the bassinet the baby rock in. The lady has a tattered dress and black

dirty hair, dirty face and hands and old black shoes, and all the baby has is just the blanket they gave when he was born, and all the babies have is a little sweater. One day, the lady was walking along, a very red man came up to the lady and said, 'My dear, if you want to have money, you must go to work.' The lady took his advice, and won her enough money to buy the babies anything they likes, and the babies grew up and were never poor again."

Comment: The plan is followed through here to various degrees of efficiency, and it remains essentially the same: getting money in relation to babies. This initial goal needs no essential variation of its ongoing means to attain it. Furthermore, the planned actions are interrupted (not switched while going on), before there is a re-starting of some variation of ways to attain the same initial goal.

4. Examples of Stage IV: Ability to switch the principle of action appropriately

a) "There's a tractor carting corn, and going along, and suddenly it stops. It won't start again. So the driver goes and fetches another tractor, and unloads the trailer, has to tow the tractor that's broken down away, so he hitches on the tractor, and takes it off to the barn. That's all."

Comment: The principle of action (carting corn by a tractor) is switched appropriately as a change in circumstances arises, to the principle of taking care of a broken down tractor (in various appropriate steps).

b) "Once there was this little girl and she was born very small, and she used to hide in this little cellar under a house, and the birds used to come and talk to her, and but she used to be really sad, because she had no humans or anything that were her size, and one day she was crying and a bird came, and asked her what was wrong, and she said, that she wanted a human to be with. So the bird took her on his back, and flew her to a beautiful land, and she met a nice boy who was her size, and they got married and she was happy."

Comment: The principle of action (birds talking to a lonely girl) is switched appropriately as a change occurs in that the girl is crying and verbalizing her wish. The new principle of action now is taking the girl to a boy (in various appropriate steps).

APPENDIX G
THE SCHOOL BOARD OF BROWARD COUNTY, FLORIDA

August 10, 1978

TO: ESAA Principals and Teachers

FROM: Terry K. Weed, Coordinator of ESAA

SUBJECT: Guidelines for ESAA Participation

The CTBS Level A TOTAL BATTERY will be administered to every first grade student, both new first graders and first grade repeaters, beginning Tuesday, September 5th to be completed by Friday, September 8th. Students will be eligible for the ESAA Reading/Mathematics Program in accordance with the following criteria:

Priority I New first graders scoring 109 or below on the seven tests which comprise the Pre-Reading Section of the CTBS Level A. Please note this is a change from previous years when only six of the Pre-Reading tests were administered. The CTBS Level A Math Score will not be used as a selection criteria, but is necessary for research purposes.

Priority II First grade repeaters who have not ever been in the ESAA program who score 109 or below on Level A, or 1.4 or below on the reading and math section of Level B (spring testing only). Students new to the county should be given Level B. ALL first grade repeaters must have a Level A and a Level B score.

Priority III First grade repeaters who are former ESAA students who score 109 or below on Level A, or 1.4 or below on the reading and math sections of Level B.

Priority IV First grade repeaters who scored 1.4 or below on Level B reading and have a higher score on math.

Priority V Second graders who have never been in the ESAA program and scored 1.4 or below on the reading and math section of Level B.

Priority VI Second graders who have never been in ESAA and scored 1.4 or below on Level B reading and higher in math.

Priority VII Second grade former ESAA student who score 1.4 or below on Level B reading and math.

Priority VIII Second grade former ESAA students who score 1.4 or below on Level B reading and higher in math.

In order for the ESAA Program to follow prescribed guidelines, it is essential that the participants in each school be selected in the priority listed. We appreciate your cooperation.

Please return the enclosed form to the ESAA office by September 14, 1978.

ENC.
Distribution List

APPENDIX H
THE FRIENDSHIP INTERVIEW
(Selman and Jaquette, 1977a)

We are going to view a film about a problem between two best friends. Afterward I want to find out how you would feel.

Open-ended probes

1. What do you think the problem is in this story?
2. What do you think Kathy will do, choose to be with her old friend Becky or go with the new girl Jeanette? Why? Which do you think is more important to be with, an old friend or make new friends?
3. Do you have a best friend? What kind of friendship do you have with that person? What makes that person your best friend?

(This information is used for probing personal knowledge of remaining friendship issues.)

I. Formation

A. Motives--Why friends are important

#1. If you were a new girl in town like Jeannette, why would making friends be important?
2. What makes it important to have a good friend like _____ (name best friend of child)? Reflect child's answer and probe reasons a person needs a good friend.

B. Mechanisms--How one goes about making friends

#1. How should Jeanette go about making new friends?
2. Is it easy or hard to make friends? Reflect answer and probe opposite view.

C. Ideal friend--Qualities of persons that make good friends

1. What kind of person makes a good friend?
2. Reflect answer to 1. and restate question in terms of the child: _____ so what kind of person would you want as a friend?

II. Closeness/Intimacy--Different types of friendships and factors which make for close and affectionate friendships

1. What kind of friendship do you think Kathy and Becky have? (i.e., Do you think it is a good or close friendship?). Reflect answer and probe how this might be special and/or what things friends might know about each other.

2. What things do good friends talk about that other friends sometimes can't? What kinds of problems can they talk over?

3. What makes the difference in the kind of friendship Becky and Kathy have (i.e., old friends) and Kathy and Jeanette's friendship (new friends)? Are there different kinds of close friendship (regular vs. best)?

#4. Is it better when best friends are like each other or different?

5. Would you rather be with a best friend or a group of regular friends? Reflect and probe reasoning.

III. Trust and reciprocity--The value and nature of trust and reciprocity in a close friendship.

1. What kinds of things do good friends like Becky and Kathy do for each other? Is it important to do things for each other in a good friendship?

2. Is trust important for a good friendship? Why?

3. What is trust anyway? Is it something more than just keeping secrets and paying back?

Is there something more, something deeper to trust? (i.e., What does it mean to trust your friend?)

#4. Is there a difference in trust someone has in a best friend and the trust in someone you just know from school or something?

IV. Jealousy--The nature of jealousy and its effects on friendship

1. How do you think Becky feels about the new friendship between Kathy and Jeanette? (or ask, Will Becky feel bad if Kathy plays with Jeanette?)

2. Do you think Becky might get jealous? What is Jealousy anyway? What does it mean to be jealous (of losing a friend)?

V. Conflict resolution--How arguments or conflicts are settled between good friends and the effect of arguments on friendships

1. If you and your friend have a fight or argument (like Becky and Kathy might), can you still be friends? How is this possible?

2. What is the best way to settle a fight?

3. What kinds of things do you sometimes fight or argue about with a good friend?

VI. Termination--How and why close friendships break-up

#1. If Kathy and Jeanette become good friends, what will happen to Becky and Kathy's friendship? (Will it break-up because of it?)

2. What causes friends to end or break-up (to not be friends anymore)? Reflect answer and repeat probe (Ex. Child says "because they fight"; question: If you fight, is it still possible to be friends?).

3. What does a person lose when they lose a friend?

4. What might make good friends not be friends (or grow apart? What does it mean to grow apart?)?

*Pontius' Probes--Goal is to elicit a narrative

1. Can you tell me about a time when you were with a best friend? What kinds of things did you do together?

2. What would you do if what happened between Becky and Kathy happened between you and your best friend?

Optional questions.

APPENDIX I
OVERVIEW OF ASPECTS
(Selman, 1974b)

Issue I--Close Friendship Formation

Stage 0--Momentary physical interaction

A. Motives for friendship
   1. responses to specific cases rather than general question
   2. friends not differentiated from the activity in which self and other are involved

B. How one goes about making friends (mechanisms)
   1. close friends live close by (friendship-making a function of proximity and propinquity)
   2. friendship by fiat--arbitrary decree
   3. knowing the surface facts of social life
   4. giving presents--it's not the thought but the present that counts

C. Ideal friend-qualities of persons that make them good friends
   1. superficial similarity
   2. non-aggressive behavior toward the self
   3. geographic location

Stage 1--One-way assistance

A. Importance of friendships (motives)
   1. a friend is someone who serves the self's needs
   2. assistance in times of trouble

B. Mechanisms
   1. tune into each other's attitude
   2. present as a means of putting other in a good frame of mind
   3. getting to know other's likes and dislikes

C. Ideal friend
   1. someone with good intentions
   2. someone who matches activities with the self

Stage 2--Fairweather cooperation

A. Motives for friendship
   1. friendship is important for inner peace of mind
   2. self needs people to like the self

B. Mechanisms for making friends
   1. reveal one's own likes and dislikes
   2. presents as windows on the self's motives
   3. match-up of liked activities
   4. knowing what other thinks of you

C. Ideal friend
   1. concern with fronting and with not putting on a false appearance
   2. someone who acts like an equal--not "bossy" or "show-off"

Stage 3--Intimate sharing

A. Motives for friendship
   1. for companionship and intimacy
   2. mutual support--support for others is reflected back onto the self

B. Mechanisms
   1. reveal personality characteristics, know those of other
   2. first impressions as lasting impressions

C. Ideal friend
   1. rub-off theory
   2. complementary personalitites--generally similar interests

Stage 4--Autonomous Interdependence

A. Motives for friendship
   1. gaining a sense of personal identity
   2. gaining a sense of peer identity
   3. both support and freedom

B. Mechanisms
   1. building up of commonality
   2. ability to reflect on the process of friendship formation

C. Ideal friend
   1. relativity and complexity of personality
   2. friend as sensitive, empathic, to the self's needs

Issue II--Closeness and Intimacy

Stage 0--momentary physical interaction

1. dichotomization or polarization of friends
2. close friends equal to physical propinquity
3. superficial similarity

Stage 1--one-way assistance

1. rank ordering of persons as friends
2. longer time known means better knowledge of likes and dislikes
3. one-way wants

Stage 2--Fairweather cooperation

1. good friends "get along with each other"--ranks friendship, not the friend
2. getting to know other's "true, real, or inner" attitudes

Stage 3--Intimate sharing

1. close relations based upon sharing and intimacy
2. length of time of friendship important because close relations are built upon mutual experience
3. close friends need not be the same but need to have things in common
4. caring about both self and other

Stage 4--Autonomous Interdependence

1. reflective awareness of the many possible qualitatively different types of relations
2. close friendship involves moral commitment as well as support of a deep psychological value: a respect for the person as an individual

Issue III--Trust and Reciprocity

Stage 0--Momentary physical interaction

1. reciprocal acts of physical affection or reciprocal restraint from harm
2. trust equivalent to confidence in physical prowess and ability

Stage 1--One-way assistance

1. reciprocity as one-way street--actions which please another
2. trust as knowing (predicting) what other will do as well as can do
3. trust as doing other's bidding

Stage 2--Fairweather cooperation

1. two-way reciprocity
2. equal satisfaction
3. trust equals keeping secrets
4. trust as pay-back--reciprocating tangible products and services

Stage 3--Intimate sharing

1. mutual support and admiration
2. shared intimacy
3. consistency and dependability of persons

Stage 4--Autonomous interdependence

1. reciprocity of emotional and psychological support
2. trust as the ability to let go

Issue IV--Jealousy

Stage 0--Physical interaction

1. physical lockout
2. jealousy of objects and activities

Stage 1--One-way assistance

1. hurt feelings for being excluded
2. mine is better than yours

Stage 2--Fairweather cooperation

1. hurt feelings as a result of being left out of interpersonal interaction

Stage 3--Intimate Sharing

1. jealousy as possessiveness in a relation
2. jealousy as a trait as well as a state

Stage 4--Autonomous interdependence

1. jealousy--admiration of meaningful relations
2. awareness of conflict between jealousy and growth

Issue V--Conflict Resolution

Stage 0--momentary physical interaction

1. conflict resolution through non-interaction
2. physical intervention

Stage 1--one-way assistance

1. negating the action
2. appeal to other's outlook

Stage 2--Fairweather cooperation

1. resolutions which appeal to both parties' sensibilities
2. taking back true intent
3. forget in order to forgive
4. friends on the inside but not on the outside

Stage 3--Intimate sharing

1. conflicts arising within the relation need mutual resolution
2. conflicts of personality
3. working through conflicts strengthens the friendship --continuity of friendship through thick and thin
4. superficial conflicts and deeper bonds
5. talk it out

Stage 4--Autonomous interdependence

1. relation of complex personalities and complex conflicts
2. level of communication between friends

Issue VI--Termination

Stage 0--momentary physical interaction

1. physical harm
2. physical separation

Stage 1--one-way assistance

1. unilateral decisions
2. squealing, name-calling, insults: bad manners

Stage 2--fairweather cooperation

1. disagreements and differences of opinion rather than unilateral opinion
2. fair and foul weather friendships

Stage 3--intimate sharing

1. conflicts of trust
2. fair and foul weather friendships: greater stability but also less irreversibility
3. incompatibility--lacking a common bond

Stage 4--autonomous interdependence

1. disagreements as lack of communication
2. personality issues
3. growing apart

APPENDIX J
ADDITIONAL REGRESSION ANALYSES BY GROUP

Multiple Correlations, Proportion of Variance and Increments Associated with Teacher Perception and Descriptive Variables: High Adjusted Group

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Perceptual-Motor	0.34	0.1124	0.1124	-0.34	-1.18	1/11	1.39**
Prereading	0.79	0.6243	0.5119	-0.33	-0.91	2/10	8.31*
Interpersonal Understanding	0.86	0.7466	0.1223	-0.17	-0.42	3/9	8.84*
Math	0.87	0.7503	0.0037	0.17	-0.07	4/8	6.01*
(Constant=123.27)							

* $p<0.05$ ** Not significant

Multiple Correlations, Proportion of Variance and Increments Associated with Peer Perception and Descriptive Variables: High Adjusted Group

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Perceptual-Motor	0.27	0.0723	0.0723	0.27	1.18	1/11	0.86**
Prereading	0.63	0.4021	0.3299	0.26	0.74	2/10	3.36**
Math	0.76	0.5767	0.1745	0.20	0.54	3/9	4.09*
Interpersonal Understanding	0.79	0.6267	0.0500	0.03	0.26	4/8	3.36**
(Constant=-189.33)							

* $p<0.05$ ** Not significant

Multiple Correlations, Proportion of Variance and Increments Associated with Teacher Perception and Descriptive Variables: Middle Adjusted Group

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Interpersonal Understanding	0.52	0.2717	0.2717	0.52	0.41	1/12	4.48**
Perceptual-Motor	0.59	0.3452	0.0736	-0.42	-0.67	2/11	2.90**
Action Behavior	0.69	0.4744	0.1291	-0.24	-0.39	3/10	3.01**
Prereading	0.75	0.5597	0.0853	0.07	-0.35	4/9	2.86**
Math	0.75	0.5609	0.0012	0.03	-0.05	5/8	2.04**
(Constant=40.84)							

** Not significant

Multiple Correlations, Proportion of Variance and Increments Associated with Peer Perception and Descriptive Variables: Middle Adjusted Group

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Action Behavior	0.32	0.1027	0.1027	-0.32	-0.32	1/12	1.37**
Interpersonal Understanding	0.42	0.1799	0.0773	-0.28	-0.30	2/11	1.21**
Prereading	0.44	0.1942	0.0142	-0.24	-0.28	3/10	0.80**
Perceptual-Motor	0.48	0.2316	0.0374	0.12	-0.27	4/9	0.68**
(Constant=74.26)							

** Not significant

Multiple Correlations, Proportion of Variance and Increments Associated with Teacher Perception and Descriptive Variables: Low Adjusted Group

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Action Behavior	0.33	0.1092	0.1092	-0.33	-0.49	1/14	1.72**
Prereading	0.41	0.1719	0.0627	-0.14	-0.52	2/13	1.35**
Interpersonal Understanding	0.52	0.2696	0.0977	0.20	0.46	3/12	1.48**
Math	0.61	0.3687	0.0992	0.02	0.43	4/11	1.61**
Perceptual-Motor	0.62	0.3821	0.0133	0.22	0.20	5/10	1.24**
(Constant=46.94)							

** Not significant

Multiple Correlations, Proportion of Variance and Increments Associated with Peer Perception and Descriptive Variables: Low Adjusted Group

Descriptive Variables	R	R^2	R sq Change	Simple R	Beta	df	F
Action Behavior	0.38	0.1448	0.1448	-0.38	-0.42	1/14	2.37**
Perceptual-Motor	0.48	0.2382	0.0935	-0.31	-0.28	2/13	2.03**
Interpersonal Understanding	0.51	0.2573	0.0190	0.21	0.18	3/12	1.39**
Math	0.51	0.2612	0.0039	0.19	0.12	4/11	0.97**
Prereading	0.51	0.2652	0.0041	0.33	-0.13	5/10	0.72**
(Constant=95.19)							

** Not significant

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BIOGRAPHICAL SKETCH

Patricia Eileen Cowan was born June 10, 1946 in Opalocka, Florida. She received her Bachelor of Arts degree in psychology from the University of Florida in March, 1968. In June, 1975 she received her Master of Education and Specialist in Education degrees from the University of Florida.

Ms. Cowan has had the opportunity to work in a variety of interdisciplinary areas during the period between 1968 and 1977. She was employed by the Department of Medicine at the University of Minnesota and the University of Florida. She has also worked in an environmental laboratory at the University of Florida. From 1975 to the present, she has been working toward the Doctor of Philosophy degree in Counselor Education at the University of Florida. For two of those years she has been a trainee in the Gestalt Institue of Florida and has worked as a mental health therapist at Community Health, Inc. of South Dade in Miami. Currently, she is director of the BodyMind Program in the same clinic and is an adjunct assistant professor in the Department of Family Medicine at the University of Miami.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Ted Landsman, Chairman
Professor of Counselor Education
and Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Larry Loesch
Associate Professor of Counselor
Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Janet Larsen
Associate Professor of Counselor
Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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This dissertation was submitted to the Graduate Faculty of the Department of Counselor Education in the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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